# Telephony.

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H. D. FARGO, President and Treasurer
S. R. EDWARDS, Editor and Secretary

H. D. FARGO, Jr., Vice-President and Advertising Manager
D. C. SORENSEN, Western Advertising Manager

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## TELEPHONE GROWTH MEANS MORE PROSPERITY HERE AND ABROAD

From time to time we are told by the economists and statisticians that the last quarter of a century has seen more development in the world than was ever before known in the same length of time. This is strikingly true in the United States, which without boasting—only a due regard for facts—we know, is far in advance of all other countries in the matter of material progress and the science of modern living.

Efficient, speedy communication has been one of the outstanding factors in America's record-breaking progress, and this fact is recognized by business leaders whenever they meet to survey conditions and plan for the future.

Needless to state, the telephone plays a leading part in the communication field, and its wonderful development in the United States has had much to do with this country's pre-eminence in the world advancement.

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One of the speakers at the recent Washington meeting of the Chamber of Commerce of the United States said there are three major factors that determine the position a nation occupies in the advance march of the world. They are described as: The possession of natural resources, habits of industry and a stable, sound government.

These three essentials provide the bases on which rest the prosperity and social strata of a people. They are especially characteristic of life in America and largely explain our American prosperity. They are responsible for the fact that America's 6 per cent fraction of the world's population converts annually into living aids more than one-half of the world's resources of iron, steel, copper, coal, oil, timber and cotton.

These factors are likewise the reason why almost one-half of the world's railroad mileage has been built in the United States; why three-quarters of the world's telephone and telegraph equipment is used here, and why nearly nine-tenths of the manufacture and possession of the world's automobiles are in the United States.

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In discussing the third factor, stable and sound government, the speaker—Julius H. Barnes—had this to say about the importance of communication which will interest telephone men:

"In the Old World the problem of natural monopoly, such as railroads, telephones and electric service, found no answer, but the social theories that looked to government ownership and government operation as the solution. America is fortunate that it was able to develop a policy of fair and just public regulation which protected the public interest against unrestrained monopoly, but still preserved in industry the driving power of individual initiative.

"The lethargy and lack of enterprise which follows bureaucratic administration is shown clearly in the field of telephone communication. It is no accident that under private ownership in America this sparsely-settled country has 15 telephones per 100 of its people, as against three telephones per 100 in Great Britain, with its government-owned service, and against the government-monopoly telephone system of Russia with one telephone for each 1,000 of its people.

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"The use of facilities depends on efficiency, and again it is no accident that in America our telephone conversations are annually 192 per capita, against Great Britain with 24, and Russia with 5. In no other industry is painstaking and expensive research more quickly reflected in facilities that increase earning power of industry and add to the social comfort of a people.

The devices which enable New York to talk to San Francisco came not as a flash of inventive genius, but as the result of painstaking research and experiment, with the investment of costs that have returned themselves a thousand times in service. But no Parliament or Congress, sitting as the board of directors of government-operated industry, would have sanctioned the expense of experiment which private industry has justified a thousand-fold.

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Therefore, on the government lines of Europe no such long distance telephone conversation is possible as in America, and thus expanding industry is deprived of a great service facility."

However, granting the superiority of American telephone development, it is hardly fair to charge the slow telephone growth in most European countries entirely to their government control. Conditions in the United States and in England, for instance, differ so widely as to make such comparisons scarcely relevant.

It was the spirit of individualism in American business that caused the rapid growth of telephone service in this country. It is now conceded that it was the work of Independents, aspiring to plant telephones in every town and farming community of the land that gave the industry such an impetus in the United States. The remarkable spread of telephone wires which took place all over this country during the early days of the art would have been impossible in any other part of the world, regardless of whether the government entered the telephone business or not.

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The same analysis will apply to the multiplication of automobiles in America. Government does not control motor cars in European countries, yet the United States presents the same astounding figures of car ownership compared to automobiles owned in foreign countries.

## COMING CONVENTIONS.

**Pennsylvania, Philadelphia, Bellevue-Stratford Hotel, August 30, 31 and September 1.**

**Telephone Association of Canada, Montreal, Windsor Hotel, September 15-17.**

**Indiana, Indianapolis, Claypool Hotel, September 21, 22 and 23.**

**United States Independent Telephone Association, Chicago, Hotel Sherman, October 12-15.**

**Illinois, Springfield, Hotel Abraham, Lincoln, November 10 and 11.**

But all reports agree that there is a great telephone awakening abroad. In Great Britain, particularly, telephone development is moving ahead rapidly, not only in the increasing number of subscribers but in the improving quality of the service. The British postoffice may have been traditionally conservative in pushing universal use of the telephone, but it is today steadily building a great and efficient system that will mean much to the commercial prosperity of the country.

There is a notable revival of telephone activity also on the continent. In Germany the express trains are now equipped with telephones. One of the cars has a special telephone compartment presided over by a competent operator. Connections are made quickly, and a messenger calls the passenger to the telephone as easily as in a hotel lobby. Telegrams are also transmitted over telephone wires to travelers on trains when they arrive at certain stations.

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Adequate communication among peoples plays a big part in their prosperity and in their advancement in every way. Prompt circulation of news reports and the exchange of information and messages between the nations of the world will do more to clear up international misunderstandings and avoid war than any peace organization.

These peace conferences help, no doubt, but the main reason they accomplish any good is because modern communication methods enable the world to keep posted on their progress, encouraging and supporting the wise decisions and denouncing and opposing the mistakes.

If world peace is ever established, the factor of improved communications will be entitled to the major share of the credit.

# Methods of Distributing Traffic

## The Partial and Intermediate Distributing Frame and Other Methods of Distributing Telephone Traffic Which Are in Use at the Present Time—Paper Awarded Second Prize, Traffic Division, "Telephony's" Prize Contest

By E. L. Gaines,

*Traffic Superintendent, The Home Telephone & Telegraph Co., Fort Wayne, Ind.*

On account of its high first cost, and excessive maintenance cost, the full intermediate distributing frame has been eliminated from many modern central office equipment installations. The purpose of the intermediate distributing frame in a manual plant is to allow a flexible means for connecting any desired subscriber's line signal and its associated answering jack with any line number in the subscriber's multiple and thus make possible an equal theoretical loading of all operator positions.

The customary practice in plants equipped with a full intermediate distributing frame is to assign line or multiple numbers according to the numerical arrangement in the switchboard multiple, little or no attention being paid to the assignment of the numbers other than when a subscriber has more than one line, to group all lines to that subscriber so they will appear in adjacent multiple jacks on the face of the switchboard. The subscriber's line is connected to the multiple jack cable at the main distributing frame by means of a two-wire jumper.

All outward calls to the subscriber's line are made through the multiple jacks and, since these jacks are usually within reach of all operators in the office, there is no problem of outgoing traffic to solve.

Inward calls are received through the answering jack, which, with its associated line signal, is tied to the subscriber's line with a three-wire jumper at the intermediate distributing frame. Since there is only one answering jack per line on the conventional multiple board, and no more than three operators at the most have access to it to answer calls, it is of utmost importance that it be located on a switchboard position where the operator is not already overloaded with calls.

Careful studies of position loads must constantly be made to determine proper locations for additions and changes, giving particular attention to calling rates and holding time of all lines. It is necessary to mark the directory number of the line on each answering jack in order to identify the line, and cross-index records must be kept of all connections on the intermediate distributing frame.

Although the intermediate distributing frame makes it possible to distribute incoming traffic in a fairly satisfactory manner, it has disadvantages which sometimes outweigh its advantages. In the first place, its cost is high and it requires a rather large amount of floor space. In many instances operating companies have experienced difficulty in obtaining employes who would give the right amount of attention to its use, more especially in smaller offices.

When used as designed, the extra cost of running jumpers and keeping records have often led to its abandonment, and

in many medium-sized Independent offices today the intermediate distributing frame will be found cut out of service. The economy in these cases is problematical, but nevertheless the frames are not used, which, in itself, proves the need for something less cumbersome and more efficient.

For a number of years operating and equipment engineers have been looking about for some more practical arrangement with which to replace the full intermediate distributing frame and, in some instances at least, their efforts have not been without result. It may be said that the need for some efficient form of traffic distributor was greatest in the medium-sized office. In such places rates are usually low and every possible means for efficiency and economy must be used.

One substitute for the full intermediate distributing frame which has come into quite general use in the last few years is known as the associated multiple. In its most usual form the associated multiple board has a line lamp appearing with each multiple jack, and the multiple jacks are used as answering jacks, thus eliminating the answering jack in its conventional form altogether. In a board of this type having five sections, the lines of all subscribers will appear five times in the multiple, line lamps being associated with the multiple jack in each section.

If three-position sections are used, all 15 operators at the board will have access to each and every incoming call. The distribution of incoming traffic is thus as good as the distribution of outward calls, and the load on each operator's position is nearly equal.

One objection that has been made to the associated multiple type of board is that there is some lost effort on the part of the operators when more than one operator reaches for the same call. To overcome this fault some engineers recommend the use of the different colored line signals arranged in such manner that operators will have a first and second choice or first, second, and third choice, of incoming calls. This arrangement overcomes much of the lost effort difficulty, although some claim it does it by sacrificing speed in answering.

Another objection to the full associated multiple is that on a large installation the multiple is too high to reach and the added cost of line lamps is excessive; also wasted effort on the part of the operators, caused by too many reaching for the same call, increases with the number of line signal appearances. On account of these objections most manufacturers limit the number of line signals to three, thus saving switchboard space, cutting down the cost and avoiding waste effort by the operating force.

In the partial associated multiple board just described, a six-section board having three operator's positions per section would have half of the subscriber's line signals appearing in each of the first three sections and the other half in the remaining three. In this manner any calling subscriber's signal is accessible to eight or nine operators.

In the full associated multiple, or part associated multiple board, an intermediate distributing frame is unnecessary.

An extended use of the intermediate distributing frame, not yet mentioned, is in connection with party-line switchboards of the jack-per-station type. In this type of equipment there are twice as many multiple jacks as line signals, in the case of two-party lines. Any two multiple jacks on the board may be tied to any line signal and answering jack desired. The multiple jack may be connected "straight" or "reversed" according to which party on the line is to be rung from that particular jack; the two different stations on the line being rung on different sides of the line.

With the jack-per-station board no party-line ringing keys are used, the party selection being made in the multiple jack. A decided advantage of the jack-per-station board is that it is not necessary to change a subscriber's number when he moves from one location to another in a given central office district. Even though changed to a different line, the number remains the same. The saving to the telephone company in thus eliminating directory changes is considerable, and the subscriber is pleased when he finds that his number does not have to be changed when he moves.

"For a Number of Years," Says Mr. Gaines, "Operating and Equipment Engineers Have Been Looking About for Some More Practical Arrangement With Which to Replace the Full Intermediate Distributing Frame."

Various types of traffic distributing switches have been designed to take the place of the intermediate distributing frame, some combining part of the features of the associated multiple board with automatic switches, others distributing calls directly to the operator's cord circuits. A number of these have been very successful from a traffic standpoint but none has come into very general use.

With the coming of automatic telephone switching systems, new problems of traffic distribution arose owing mainly to the fact that inward and outward calls had to be distributed separately. One set of switches receives calls from subscribers' lines and passes them on to another set which delivers them to the called lines. Lines and switches must thus be arranged in groups according to the calling rate for each class of service and also according to the receiving rate.

This difference in calling and receiving rates may be explained by comparing the

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**The distributing frame is an important part of central office equipment. The intermediate distributing frame was formerly considered an essential in the efficient handling of telephone traffic as through its use and equal theoretical loading of all operating positions was made possible.**

**This article by Mr. Gaines, dealing with the partial and full line intermediate distributing frames, is of interest to all engaged in the handling of telephone traffic. Some of the subject matter of this article is new to the art of telephony—the use of the partial line intermediate distributing frame in connection with the ordinary manual multiple switchboard.**

**"Insofar as I have been able to ascertain," says Mr. Gaines, "this combination has never been made in actual practice. If the idea were put into practice, it would save thousands of dollars on a large manual installation."**

**The use of the partial line intermediate distributing frame in automatic installation is not generally understood by the average telephone man and Mr. Gaines has, therefore, given what he believes to be the best practice along that line. In order to make the article comprehensive to the average user, he has tried to cover the subject of the intermediate distributing frame as well as other methods of distributing traffic which are in use today.**

service rendered grocery stores with that given cigar stores and drug stores in which the public has access to flat rate telephones, or "free" telephones as the public usually considers them. Many grocery stores receive as high as 25 calls per line on their telephone during the busy-hour, and in the same hour may originate only one or two calls. On the other hand, drug and cigar stores may keep their lines busy during the entire busy-hour with outgoing calls only and receive no inward calls whatever.

It is apparent from the very nature of this double requirement that if line numbers and group arrangements were made according to calling rate, the group arrangement for the receiving rate would not be correct unless the calling and receiving rates happened to be exactly the same for a given group. It is evident that such a condition would seldom occur and, therefore, provision must be made to balance the calling and receiving rates, or provide additional facilities in the way of switches to handle the overloaded groups.

In order to save initial cost, floor space and the extra maintenance cost, the latter method has been largely used by Independent companies. The Bell companies have more generally used the full intermediate distributing frame. When switch groups are to be adjusted to the load, lines may be assigned to conform to either the calling or receiving rate and the switch group at the other end of the switch train adjusted to the actual load. Thus if numbers were assigned according to connector loads (calls to the subscriber), the number of first selectors serving the lines groups would have to be increased or decreased according to the line switch load (calls for the subscriber).

The main objection to this arrangement is that as changes in lines within a group are made, the number of switches must be varied to conform with the changed loadings, and if sufficient flexibility is to be obtained a rather high investment in extra vacant shelving and switch banks is inevitable. Switch groups are not of uniform size and each and every group requires a special traffic study to determine an overloaded or underloaded condition. With uniform grouping and loading, traffic studies are simplified and idle equipment is kept at a minimum, while the subscriber is given a more uniform grade of service. Uniformity in arrangement and size of groups is also an aid to keeping maintenance costs down.

When the full intermediate distributing frame is used with automatic equipment, line switches are not permanently associated with connector numbers. Instead, their cables are terminated on the intermediate distributing frame as are also the connector multiples. Connections between line switches and connector numbers are made with a three-wire jumper on the intermediate distributing frame in exactly the same manner as connections are made in a manual office between line signals and the switchboard multiple.

The full intermediate distributing frame is perhaps most useful in an automatic office when the equipment is of the terminal-per-station type, which corresponds to the jack-per-station manual switchboard. With this type of equipment, each 100 lines are provided with two groups of connectors (for two-party service) and each group arranged to ring one party on the line.

It is evident that this scheme may be used for any number of parties on a line up to ten, the subscriber dialing an extra diget in the number to choose the connector group. Bunching terminal blocks are provided on the intermediate distributing frame on which the jumpers leading to the different connector groups are terminated.

The full intermediate distributing frame permits an equal distribution of both inward and outward traffic and, from an operating standpoint, has many points in its favor. Line groups on connectors must be limited in size to 100 lines because of the capacity of the connector switch. Connector groups may be made of a uniform size where an I. D. F. is used and uniformly loaded by number assignment. First selector groups may then be loaded according to calling rate by line switch assignment. Party-line changes may be connected directly to an intercepting operator position by means of intercepting trunks. Directory changes are kept at a minimum.

Some of the objections to the terminal-per-line arrangement as outlined are high first cost and excessive maintenance cost, and a rather large amount of floor space necessary for the full intermediate distributing frame. Whether or not these objections outweigh the advantages must be decided on the merits of each particular installation, and even on a given installation engineers do not always agree. It must be admitted, however, that great economy of selectors is made possible by the full intermediate distributing frame on account of the uniformity of loading it makes possible.

In recent years a departure from former standard I. D. F. practice has been made by placing only a small percentage of the lines in a central office unit on the I. D. F. and connecting the remaining line switches permanently to the connector numbers.

This arrangement is based on the theory that in the average office where no I. D. F. is used, complete uniformity of all loading may be obtained by installing an I. D. F. and making a cut on it of only 20 per cent of the lines. If, therefore, a small I. D. F. is installed, carrying only 20 per cent of the lines in the office, the load should be kept well balanced by its means, at all times.

If the partial I. D. F. were used in a manual office where the switchboard had 100 line signals on each operator position, 80 lines out of the 100 would have their line signals and answering jacks permanently connected to the multiple jacks. The remaining 20 lines would apear on the intermediate distributing frame and would in almost every case permit sufficient flexibility in loading to keep all positions fairly uniform. It must be remembered that a manual switchboard of the full multiple type may be kept fairly well loaded by means of intelligently assigning numbers, excepting in cases where large trunk groups such as P. B. X. lines are involved.

With a partial I. D. F. all groups of heavy service users such as P. B. X. subscribers may be handled through the I. D. F. in the usual manner. All other lines may be placed to best advantage when numbers are assigned.

It is best to have about half of the lines on the partial I. D. F. composed of lines having the highest calling rate of any entering the office. The other half should have the lowest calling rate so that it will be possible to exchange high and low calling rate lines at any time a cut for reloading is necessary.

It also follows that of the lines appearing on each position which pass through the I. D. F., approximately an even number should be of highest and lowest calling rates. With the flexibility given by 20 per cent I. D. F., a switchboard will seldom have to be reloaded if reasonable care is used in routine number and jack assignment.

## Why Telephone Workers Like "Telephony."

In a letter enclosing remittance for renewal of subscription, Mrs. F. W. Wessel, president of the Ozark Telephone System, operating exchanges at Dixon, Waynesville and Crocker, Mo., writes:

"We have been subscribers to TELEPHONY for years, and would not like to be without it, for there are many helpful suggestions in your journal, as well as information that we have found invaluable to an operating force."

P. A. Mitchell, manager of the Lebanon (Ore.) Telephone Co., in a recent letter, says:

"I have taken TELEPHONY as long as I have been in the business, and expect to continue as long as I stay in. I do not want to miss a copy."

Writing from Jonesboro, Ark., C. E. Lashbrook sends in his subscription renewal and adds this postscript:

"We enjoy TELEPHONY very much and it surely has helped us."

In a manual office having no I. D. F. and no means for traffic distribution, splendid results may be obtained at a very reasonable cost by installing a partial I. D. F. and making proper use of it. The cost of such an installation is usually low. The floor space required is small and only one-fifth of the usual number of jumpers and records is required. The cost of maintenance is reduced accordingly.

In an automatic office having a partial I. D. F., lines of one or more classes of service may be placed on it and high and low calling rate lines exchanged at will. It is not always necessary that more than one class of service be placed on the I. D. F., however, so long as the class used has a wide variation in calling rates. This variation within the same class of service has already been explained.

In some automatic installations, where line switches and connectors are mounted on opposite sides of line boards or bays, and these boards arranged in rows of three or more, a partial I. D. F. is arranged by constructing a runway over the tops of the boards and connecting any line switch in the row to any connector number in the same row of line boards. This arrangement gives a great deal of flexibility and although not as efficient as the conventional form it makes a considerable saving in cable and floor space.

Manual practice calls for the equal distribution of lines of all classes of service over all operating positions when operating methods for all classes are uniform. This arrangement is desirable because the busy hours or peak loads of the various classes of service seldom occur at the same time and the operator load is thus more uniform throughout the day.

With automatic equipment this same manner of grouping may be accomplished by combining the line-switch banks of the required number of lines of various classes of service to make up a first selector group load, which corresponds to the "A" operator's position load. When this arrangement is used in combination with the partial intermediate distributing frame, the results that may be obtained will compare favorably with the results obtained from a full line intermediate distributing frame.

## Continental Company Buys Two Iowa Telephone Companies.

The Continental Telephone Co. of Lincoln, Neb., and St. Paul, Minn., recently incorporated by Frank H. Woods of the Lincoln Telephone & Telegraph Co., G. W. Robinson of Tri-State Telephone & Telegraph Co., of St. Paul, and W. C. Bickelhaupt of the Dakota Central, with their associates, announces the purchase of two well-known Independent companies in Iowa.

One of these is the Washington Telephone Co., of Washington, Iowa, of which F. G. Moore, president of the Iowa Independent Telephone Association, is general manager. It operates 2,000 stations.

The other property is the Central Mutual Telephone Co. of Rockwell City, of which P. C. Holdoegel, who has been on the directorate of the national telephone association, is general manager. It has exchanges at Rockwell City, Lake City, Lohrville, Manson, Jolley and Pomeroy, with a total of 3,400 stations.

There will be no change in the identity of the companies, and Mr. Moore and Mr. Holdoegel will remain as the respective managers.

The present capitalization of the Continental company, which is a Delaware corporation, is 2,500 shares of 7 per cent preferred cumulative stock and 52,500 no par value common stock, of which 50,000 shares have been subscribed for by the organizers. The preferred stock is now being offered to the public. The total authorization of this stock is 10,000 shares.

Mr. Woods says that the company proposes to acquire either the physical properties or the securities of well-located telephone systems and to give such properties the benefit of its management experience. Although most of the companies it will acquire are located in the Middle West, its operations will not be confined necessarily to that section of the country. By grouping the properties now under separate ownership and management, he believes certain economies can be effected, better service rendered and more profitable results obtained.

Mr. Woods believes that in view of the general stability of the industry, any well-managed telephone company should show a good record of earnings, since the telephone is a necessity and the individual charge is a very small proportion of the income of a business or family. Only such properties as have shown a satisfactory record of earnings over a period of years will be acquired. The properties already acquired provide earnings more than sufficient to meet the interest requirements on all preferred stock to be issued under the present authorization.

It is proposed to make the preferred stock dividends payable quarterly. After the common stock has received $3 per share in any year, this preferred stock will share equally with the common in any further distribution up to 10 per cent a year. It is being offered in units of one share of preferred stock and one share of common at $105, and all subscriptions for the allotment must be in one of the offices of the company by August 1.

Mr. Woods has personally subscribed for 1,000 units of the stock, which he is now offering to stockholders of the Lincoln company. He says the policy of the company will be to buy all properties on a basis that will enable it to make some money in the operation of them from the beginning. Preference in purchases will be for companies located in the territory contiguous to the three companies most interested in the Continental, and to offer a market to owners of properties who desire, for one reason or another, to sell out or merge their property with a larger and stronger organization.

## Illinois Convention Dates Set for Springfield, November 10 and 11.

The annual convention of the Illinois Telephone Association will be held in the Hotel Abraham Lincoln, Springfield, on Wednesday and Thursday, November 10 and 11.

In as much as requests for reservations have already been received, it is important that exhibitors and others take up immediately with the hotel their requirements for the convention so that there will be no possibility of anyone being disappointed.

The program that is being planned for this year will exceed in interest and constructive value the previous excellent programs given by the Illinois Telephone Association at its annual convention, and it is believed that the attendance will be much larger than ever before.

## A. T. & T. Co. Sells Station WEAF to Radio Corporation.

Announcement was made July 22 that station WEAF of the American Telephone & Telegraph Co. had been sold to the Radio Corp. of America. It is said that no change in either the personnel or the operating policy of WEAF is in contemplation. The actual transfer will take place about January 1, and the details are still to be worked out.

It was learned that WEAF would continue to broadcast "toll" programs, sponsored by advertisers.

On excellent authority, it was reported that part of the agreement between the two companies gives to the Western Electric Co. the right to use Radio corporation patents on radio sets to the extent of $3,000,000 before royalties shall be paid to the Radio corporation and vacuum tube patents to the extent of $2,000,000 before royalties are paid.

## Added Equipment Capacity for Hastings (Neb.) Exchange.

The Lincoln Telephone & Telegraph Co. Lincoln, Neb., has adopted plans calling for an expenditure of $35,000 at its Hastings exchange, and when the work is finished there will be added capacity totaling 300 subscribers' lines.

Some of the cable lines will be extended, new conduits are to be constructed, three new positions added to the switchboard, and new polar duplex Morse equipment is being installed in connection with the telegraph service.

# Fifty Years of Telephone History

## Founders and Builders of the Pioneer Telephone Movement in Nebraska and Iowa—Telephone First Public Utility to Frankly Tell Public About Its Business—Paper Presented at Annual Convention of the Nebraska Association

By Charles E. Hall,
*Secretary, Northwestern Bell Telephone Co.*

This period is the entire life history of this great industry. Its story is as wonderful as that of any other business or social agency. It is something greater than just a story, for the invention and perfection of the telephone is one of the outstanding factors in the nation's development during the past 50 years.

In love, reverence and with the highest conception of ideals, the American people commemorate anniversaries of one kind or another, and they give to each the consideration of importance and value that is its due. Always there is great interest in the Golden Anniversary of an event and everything in its history passes in review.

On March 10, 1926, occurs the Golden Anniversary of the birth of The Telephone. Let us take a few minutes today to witness, as from a reviewing stand, the "March of Events" as they swing down the long avenue of the years and note the importance of The Telephone and the place it occupies in the procession of events that have richly enhanced our social and national life during the past 50 years.

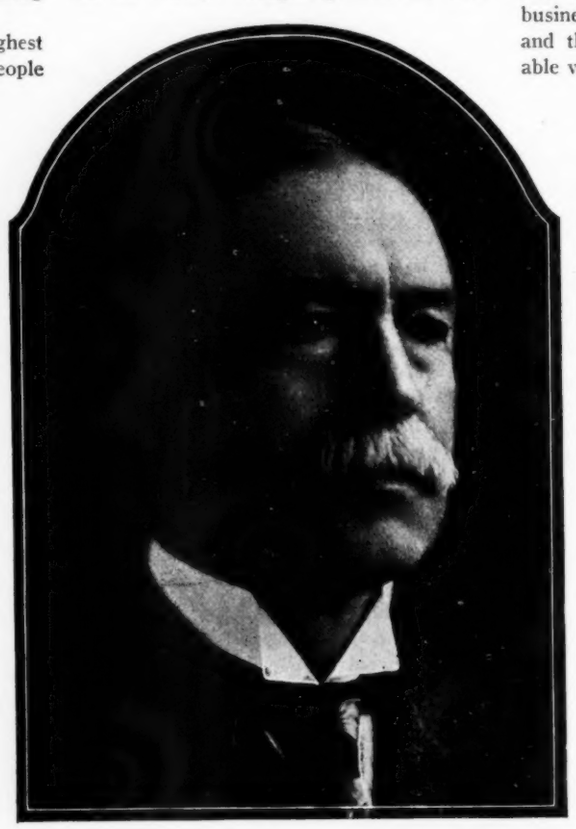
Nebraska had been a state just nine years and nine days when The Telephone was born.

The growth and development of Nebraska has been one of the marvels of our national progress. Its population has increased ten times, and this population has changed the maps of 50 years ago by erasing the Great American Desert from them forever and painting, in its place, a garden of fruits, grass and grains, and dotted its plains, not with oases, but happy, prosperous homes and beautiful thrifty towns. And in this happiness and prosperity, The Telephone has been an important adjunct.

It is to this importance that we wish to call your special attention as our story unfolds. As we have said—

In 1876 Nebraska had been a state but for nine years. During these years the nation had been slowly emerging from the throes of the great Civil War and the results were still keenly felt. Business had not fully recovered from the dire effects of that conflict. There were empty chairs in many homes, empty sleeves on many coats, and sad memories in many hearts.

But out of that time Nebraska was emerging into a fairer day. Cities, towns and villages dotted her fertile prairies. Frame dwellings and barns had taken the place of the sod house and straw sheds on her farms. Bridges spanned the once unfordable streams. Railroads traversed the state, supplanting the stage coaches. Education was well advanced so that Nebraska was soon to be renowned among the states of the Union as having the lowest percentage of illiteracy of any.



**"While it is impossible to predict in detail what will be the nature of the great new developments, we can be sure that the problems which we can now see ahead of us contain the promise of marvels greater than anything which we can now imagine," says Mr. Hall.**

The hard life of the pioneer had been greatly softened. Trials and hardships had given away to many joys and comforts. Progress was everywhere apparent and great gains in living conditions were realized when this new order was compared with the days from '46 to '66.

Improved and delightful as were the conditions of 1876; great as was their value over those of '46 to '66, there still remained the knowledge that there were things needed before perfection would be approached in social comforts and welfare.

There was something lacking which, if supplied, would make family life happier and more secure; that would add wings to business and satisfaction to its transaction, and that would be an agency of incalcuable value to society generally.

This feeling was not new nor peculiar to Nebraska. It had been felt by every civilization since history has recorded the story; from Babylonia and Egypt down through that of Greece, Rome, Europe, the American colonies and the United States.

It was noted in business by the unsatisfactory results often attained in its transaction, through messengers. Business men deplored the necessity of leaving their offices and stores to personally attend to matters outside and some distance away from their places of business.

The lapse of time and misconstruction of statements, when the mails and other agencies of communication were employed, were often felt, and in the aggregate of these were many instances of direct business losses.

In social life, within the same town or village, neither a letter nor a telegram would suffice to communicate with a friend, with a tradesman, report a fire or summon a physician. Personal journeys or those by a messenger were required.

Dissemination of news was through the weekly newspapers, and while the mileage distance between cities and towns was the same in most instances as it is today, there was a feeling of greater separation and distance than is felt now. This was occasioned by the knowledge of the time required to visit a distant member of the family or a friend, even if the occasion were one requiring but a few words. Then there was the consequent expense attendant on such a visit.

On the farm, many of these conditions were experienced more acutely if anything than in town. Those who lived in those days will recall times when hamlets and villages were cut off from the outside

world for days by floods or impassable roads.

Wagons were loaded with hogs or grain, and a long day consumed in driving to market, only to learn that the market was supplied or the prices had greatly dropped. On other occasions a trip would be made for repairs to a piece of farm machinery, only to learn that there were none on hand at that town.

On a summer day with a sunshiny sky, the reaper would be started in the standing grain, or the mower in the grass, to be followed within several hours by a heavy, steady rain whose coming could not be announced to the farmer hours ahead as now.

Then there was the ever-present need of some means to summon relief from many adverse circumstances, as repairs after storms, relief to sick stock, help when buildings or stacks took fire, help when thieves or vandals menaced and more acute than all, help when dear ones were injured, sick or dying.

Mounted on a horse, speeding along a lonely road at dark of night to the village for a doctor, many a farmer or farm boy, worn by anxiety, depressed at the loss of time consumed in the trip, prayed for the day when in some way, not then known, one could overcome these conditions.

The thing needed then was something to eliminate the isolation and loneliness of many farm homes; that would shorten distance between communities; that would bind the world into closer relationship, state with state, town with town, and person with person; that would give new zest to all social activities; that would diffuse news and knowledge as never before; that would afford protection from fire and flood and summon help speedily in distress, and become a valuable and indispensable adjunct to every business and profession.

This desideratum was improved communication. The mails and messenger service were probably the best that they had ever been, and Prof. S. F. B. Morse, in 1864, had given to the world the telectric telegraph. This in a large measure had supplanted the pony express and speeded up the railway mails. But important and valuable as his invention was then, and is now, it did not and could not supply the entire lack in communication facilities, for several reasons:

(1) Skill was required to operate it; (2) Not every community was supplied with its service; (3) It could not be used in the average business as a substitute for a messenger—that is, between business houses in the same town; (4) Its value to the farmer was alway indirect.

Then one day in Boston, in the attic of No. 5 Exeter Place, a tall Scotch professor, experimenting with what he supposed was a musical telegraph, spoke into the wooden box which contained it. The box was connected by a wire with a duplicate box in charge of an assistant located elsewhere in the building.

The words that Professor Bell spoke on that March day in 1876, were: "Mr. Watson, come here; I want you!"

Mr. Watson, in amazement, dropped the box he was holding, rushed up three flights of stairs, burst into the attic and exclaimed: "It talks, I could hear you!"

And thus The Telephone was born.

The succeeding months grew into years before the invention became more than a scientific toy.

On June 30, 1877, there were but 234 Bell telephones in existence. But large oaks from little acorns grow. Why did the system become so large as to grow from 234 telephones in 1877 to 16,000,000 at the end of 1925. There are several reasons for this wonderful growth, all of importance:

1—The long-felt want which the service supplied.

2—Its ability to supply that want.

3—Its great value compared with its cost.

4—Its economic and social policy.

5—Its management personnel.

It is not necessary to turn back the clock to 50 years ago, nor to burn a telephone office, to show how well The Telephone has supplied the lack of communication.

No other commodity of equal value can be purchased at so low a cost; or, putting it another way, nowhere else does one get as much value for a dollar as the dollar spent for telephone service.

Some of its strong economic policies are:

The business organizations owning the property issue no watered stocks. Invariably the investment is more than two times the capital stock issue.

No great fortunes have been made in it.

It is not owned by a few. It has probably more than 500,000 stockholders.

The social policy of the telephone industry has been equally meritorious; in fact, we might say unique, for it was the first great public utility to frankly and fully tell the public about its business, and this without being required to.

In 1883 the general manager of the principal telephone company, writing to the general manager in Iowa asked:

Is the telephone service, as it is now being furnished, satisfactory to the public?

Are the prices satisfactory to the public, considering the facilities and services that are given?

Is it possible, in view of the contingencies of storm, underground legislation, etc., to make any lower rate to the public for some classes of service?

What has been the tendency of the relationship between the public and the local companies for the past year, i.e., are the relations between the public and the companies improving?

There is no "public be damned" attitude expressed there. On the contrary, there is real interest and solicitude for the public's interest as well as its own. Early the right spirit in public service was originated and it has ever continued.

Its contribution to mankind outside the telephone field are many and of incalculable value. They can only be mentioned here:

The electrical transmission of photographs, of drawings, finger prints, etc., over telephone lines is a great help in the cure of diseases, detection of crime, and aid to business and courts.

Bringing telephone service to the deaf is another boon to that afflicted portion of humanity, and greater still is the audiphone whereby the partially deaf, who retain a part of the auditory nerve, may again hear normally or nearly so.

Development of the vacuum tube and perfecting the apparatus to make radio broadcasting and reception possible.

The public address systems and loudspeakers are still other developments which have contributed much to the public welfare.

We come now to the personnel—the master minds of the founders and builders of this great enterprice—Nebraska and Iowa's place in it all.

In the late 60's there came to Waterloo, Iowa, a young man of sturdy build, over six feet tall, curly blonde hair, blue eyes and restless energy. He has told how, as a boy in New Jersey, he had planned, some day, to have a farm of his own and had heard that there was land in Iowa almost for the asking, if one had the strength, grit and patience to break its sod and carry on at planting and cultivating it.

He found the cherished spot in Bennington township, Black Hawk County, Iowa, and with his own hands held the breaking plow that broke the prairie sod on what is today one of the finest farms in Iowa. In the winter interval between farming sea-

## Personality and Public Attainments.

**Some men earn a larger measure of success than others because they have learned better how to influence the mind and the will of those with whom they aspire to do business.**

**Personality, a vague entity, counts heavily. Personality is a combination of many qualities. Nearly always, however, a winning personality is based on unusual knowledge and genuine ability.**

**One successful man may be noted for his sunny disposition; another may be marked by seriousness which betokens sincerity. President Coolidge and Charles M. Schwab and Henry Ford and Judge Gary have totally different personalities, yet each has attained eminence. They have used different methods, but each has succeeded in inducing others to do what they wanted; so with Joan of Arc and Mussolini, two contrasting personalities.**—B. C. Forbes.

sons, he taught the country school near his farm.

It was on his father's farm in New Jersey that Prof. Morse had perfected his electric telegraph, and this boy was attracted to and learned the telegrapher's art. The fascination of it claimed him after a year or so of farming in Black Hawk county, and he drifted westward to where new telegraph lines were being opened beyond the Missouri river.

Ambition, tugged at him, lifted him into the railway mail service, and soon he was chief clerk in a mail car running from Omaha to Cheyenne.

His genius for organization, his great executive ability, his ceaseless energy, his wonderful vision and perception, soon brought him promotion to division superintendent, then shortly thereafter to superintendent of the railway mail service of the United States.

The Boston men, who were trying hard to make The Telephone popular and successful financially, concluded that they must secure the best general manager possible, so Thos. A. Watson, who heard the first words ever spoken in a telephone, was sent to Washington to interview and report on the noted railway mail superintendent who would be asked to come to Boston, organize the business, plan its future, and further its development.

In exchange for a good position, he accepted a surmise; and in exchange for a salary, he accepted golden hopes. Thenceforth he was destined to direct the enterprise that had harnessed the jagged lightning of the summer cloud; to take it from beginnings of less than 300 instruments to millions; to build a business of less than $10,000 to an industry of over two billions; to increase the number of people it would support from ten to over 500,000; to place in America 16,000,000 telephones; and within his loved Iowa, the greatest number in proportion to its population of any other place in all the world.

It was in this way the one-time Iowa farmer and Nebraska railway mail clerk, Theo. N. Vail, entered the communications field, where he became the dominant figure, greatest financial and organizing genius of his day, man of great vision, and most successful in accomplishment of any of his contemporaries. America's supremacy in communication development, in radio development, in underseas telephony, in humanity to employes, in improved public service, in safety campaigns, etc., are all traceable to him.

It was quite natural that he would be much interested in seeing the use of the telephone extended as far and as fast as possible, and he organized the company and perfected the greatest single agency for this purpose ever created.

When Mr. Vail was breaking up his Iowa farm, I was living on another eight miles away across the prairie from his. In later years, the young woman who became my wife taught school in the same schoolhouse that Mr. Vail had taught in many years before. It was my privilege to know Mr. Vail, and the stories he told me of his Iowa experiences before the invention of the telephone were many and delightful.

We spoke rather positively a moment ago about the value of telephone service; this was because we have come to know its value after 43 years of study of it.

Probably there is not other commodity in universal use whose value is so little understood and in the determination of which so many wrong measures of value have been used.

In 1876 there was living in Omaha a man to whom Nebraska is indebted for the foundation of its telephone service, L. H. Korty. Mr. Korty was then superintendent of telegraph for the Union Pacific Railway. He had become acquainted with Mr. Vail while the latter was a resident in Omaha. Associated with Mr. Korty in the foundation of the telephone industry was J. J. Dickey who was the district superintendent of the Western Union Telegraph Co.

These men organized the Omaha Electric Co. and opened Nebraska's and Omaha's first telephone exchange early in 1879. Thereafter the demands of other Nebraska cities for telephone service became insistent and Messrs. Dickey and Korty with their associates, S. H. H. Clark, Thos. L. Kimball and J. W. Gannett, on July 1, 1882, incorporated the Nebraska Telephone Co.

The story of the telephone in Nebraska for the next 12 years is the story of that pioneer company. If we had the time it would be an interesting procedure to relate the trials, experiments and anxious days of the founders of an enterprise embarked on unknown business seas without charts to locate the shoals and rocks along the channels of the route.

In 1893 the basic patents awarded to Alexander Graham Bell expired, and the field was open to anyone anywhere to start in the industry. From that time on, for a period nearly as long as that covered by the original patent or for 17 years, there ensued much building and consequent development. Nearly every town had an exchange—and some towns had two or more.

The people in the towns having two or more exchanges soon learned that overdevelopment was as undesirable as underdevelopment, and entreated the telephone owners to give them relief. This was not so easy to do as it might seem, for in no other great industry was the competition so keen as in this.

Business rivalry engendered asperities and estranged those who under happier conditions would have been friends and associates. It is to the everlasting credit of these business rivals that they ever had the interests of the public, whom they served, at heart and on each side great sacrifices were made, bygones were forgotten and together they resolved to build up the industry in a way that would be best for all.

One competitor abandoned the field here and another there, until today, so far as the customers of the service are concerned, they are but little interested in who furnishes the service, provided it is good. There is unity of interest and purpose among the owners who make up the great industry today, all working together for the public good.

It was one of the finest examples of righting a business and economic mistake, affecting so many people, that this nation has ever witnessed; all worked out by ourselves without being compelled to do it either by legislatures or courts. Telephone men of today can point to this economic and business achievement as second only to the invention of the telephone itself.

There could be books of intense and valuable interest written about the telephone industry started in the little room at No. 9 Exeter Place, Boston, 50 years ago. Just two men working in that little laboratory long ago. Today, in another laboratory that bears Bell's name, there are 5,000 scientists, engineers and inventors at work trying to improve and develop the means of the world's communication systems of which The Telephone is chief.

At the head of this great laboratory is a man who has been identified with the industry from its beginning, General John J. Carty, America's greatest telephone engineer, and I believe you would like to hear what he says about "Fifty years of Telephone History." Therefore I will quote briefly from his story of the 'Semi-Centennial of The Telephone.' Mr. Carty says:

The first telephone message was sent in 1876. So great has been the growth of telephone messages in 50 years that in 1926, 50,000,000 telephone conversations take place each day in the vast telephone plant which covers a continent.

## The Friends Employes Make.

**There is perhaps no better advertisement for a business such as ours, than the fact that the people in it are happy and contented on their daily tasks. The public can sense this feeling of employe contentment, and it gives the business and everybody in it a good standing among those we serve.**

**I do not mean to be boastful of our friendly relations with the public, but I do feel deeply that our people are making for us more friends every day by their conduct during and outside of business hours.**—J. T. Moran, president, Southern New England Telephone Co.

The two telephones of 1876 have increased so that now there are more than 16,000,000 telephones interconnected in the Bell system.

The first telephone line of 30 feet in length has grown to a network of more than 40 million miles of wire; and switchboards, buildings, pole lines, cables, conduits, and other forms of plant have been constructed, costing over $2,500,000,000.

During the year 1926 will be observed with appropriate ceremonies the semi-centennial of the invention of the telephone. Much will be said and written concerning the marvels which have been achieved during the past 50 years, in extending its use among all the people of our nation by means of a continental system of wires and by the most recent marvel of the radio. These things are largely dependent upon the fundamental discovery which was made by Alexander Graham Bell and upon the unremitting labors of the scientific men in those laboratories founded by him 50 years ago and which bear his name.

So much has been achieved during the last half century in the scientific and business development of the telephone in America, that we can look forward with a confidence born of experience to the astonishing things that will have been accomplished by the successors of Bell at the end of the next 50 years, when our country celebrates the second hundred years of its existence as a nation.

While it is impossible to predict in detail what will be the nature of these great new developments, we can be sure that the problems which we can now see ahead of us contain the promise of marvels greater than anything which we can now imagine.

As recently stated by W. S. Gifford, president of the American Telephone & Telegraph Co.: "The advances which have been made during the first 50 years of the work of the Bell system, are unparalleled in the history of communications. They are contributions which will make forever memorable this great epoch in our progress.

We are now at the beginning of a new era filled with boundless opportunities for advancement in the business and science of telephony. Upon the foundations which have been so securely laid, we can look forward to the telephone system of the future which in effectiveness and useful service, will surpass all that has gone before."

## HASHING THE TEN COMMANDMENTS IN A CAFETERIA

**By Miss Anne Barnes,**

*Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa*

Recently I met a woman in a cafeteria. We had just arrived at the bread counter, and she was the next before me in the line. It had taken us a long time to get there. Behind us were 25 people, looking enviously at our location. You know how it is, if you have eaten in cafeterias. Your time never seems so precious to you until you stand and wait; but the minute you arrive within reach of food, your time, and the other fellow's, in the rear, is of no further consideration; that is, to you.

Civilization then seems to scale off in places in our human make-up, revealing the original savage beneath; that is, to the other fellow. Cafeterias and telephones have a way of uncovering our faults.

The woman ahead of me lost all of her hurry as soon as she reached the food counter. Her veneering of civilization then seemed to come off in chunks, all the way down the line from bread to drinks.

After holding up the line, while she tested the age of several rolls by crushing them in the palms of her none-too-clean hands, she gave up the idea of rolls, and picked up a glazed sack containing health food and instructions for using it. She attempted to read the directions, but evidently could not, for she thrust the sack between my eyes and a choice roll I had discovered at the distant side of the pan and was trying to get.

In withdrawing my hand, which I could not see for the health bag, I had a near catastrophe. But none of the rolls reached the floor, although they did get considerably more handling. However, that did not faze her, as she exclaimed, "Read this, will you? I forgot my gl—I haven't time," she blurred into my ear .

"Useless lying," I thought, as I gazed at her pudgy, mottled hand holding the bag before me. Now, that woman! What difference did it need make to her whether I, a perfect stranger, knew that she could not read without her glasses.

I haven't much respect for one who does not tell the truth, but I have a shade more respect for the person who has a purpose in view for lying, than I have for the one who uselessly lies.

## Companies to Merge to Prevent Sale to Outsiders.

The officers of the Remsen-Alton-Granville Telephone Co., Remsen, Iowa, are taking steps to keep control of the local exchange and plant, which has of late been threatened with absorption by outsiders. To this end the directors held a meeting July 17, going on record as favoring a merger with the Marcus Telephone Co., under the management of H. J. Reimers, manager of the Marcus plant.

Frank Halbach of Moneta, Iowa, has been working in Remsen territory buying up shares in the local company. Mr. Halbach has had the assistance of some of the local stockholders who favor selling to a big corporation, claiming that better service and perhaps lower rates would result. He is said to be offering 100 per cent profit on the shares, and it is reported has gained an option on more than 200 out of about 350 shares. Mr. Halbach does not state just which interests he represents.

The directors of the local company met with Mr. Halbach in view of selling the entire property in a lump, but no agreement could be reached. He could not offer the directors the price asked, nor a price for the whole plant that would assure all stockholders, after the indebtedness was defrayed, a sum equal to what he is reported to be offering to some individual stockholders on a signed option.

The proposed merger will place the Remsen-Alton-Granville Telephone Co. in a strong financial position, as the Marcus plant is in a high state of development and free from all debts. Plans for rebuilding of the Remsen and Alton lines are to be undertaken at once.

H. J. Reimers, owner of the Marcus plant, was appointed general manager and plant superintendent. Mr. Reimers is a graduate of the University of Wisconsin in electrical engineering. Peter Eulberg retains the position as commercial manager, as the accounting is to be centralized at Remsen. The general office is also to be located at Remsen, and the issuing of rental and toll statements for Alton, Remsen and Marcus, as well as the accounting thereof, will be done from the central office at Remsen.

## Pioneer Wisconsin Company Sold to North State Company.

The Manitowoc & Western Telephone Co., Manitowoc, Wis., has been sold to North State Telephone Co. of Chicago, the concern which recently bought the Two Rivers (Wis.) exchange. The Western company's lines extend to Branch, Whitelaw, Cato, Reedsville, Brillion, Cooperstown and Greenleaf.

The Western company was organized 28 years ago as one of the first telephone companies in that part of Wisconsin.

## Prices in the Metal Markets.

New York, July 26—Copper—Firm, electrolytic, spot and futures, 14¼c. Tin—Firm; spot and nearby, $64; futures, $63.75. Iron—Steady; No. 1 northern, $20.50@21.50; No. 2 northern, $19@20.50; No. 2 southern, $21@22. Lead—Firm; spot, 8.75c.

# Protecting Central Office Equipment

## Speed in Answering Calls Does Not Excuse Negligence of Company's Property—Hints on Prolonging Life of Equipment—Efficiency of Service Abetted

### A Paper Presented at Operator's Conference Held During Ohio Convention

By Miss Ruth Dufty,

*Chief Operator, Oberlin Telephone Co., Oberlin, Ohio*

The matter of protecting central office equipment should be one of vital importance to every operator, supervisor and chief operator, who has the interest of her company at heart, as well as the desire to give the public the most rapid and efficient service it is possible to give with the equipment which is in our care.

To give to the public the service which they have a right to expect, it is necessary that we so use this central office equipment that any fault or failure of the apparatus, for the giving of service, cannot be laid at the door of the operating force.

The central office equipment, under the direct jurisdiction of the traffic department, consists of all local and toll switchboards, chief operator's, information and recording desks, the operating fixtures and stationery which are used in rendering service to the subscribers, and the conveniences provided for the operating force while on duty and during the rest periods.

The operator, who in any way intentionally abuses any of the equipment, no matter how speedy she may be in answering her calls or in putting up her connections, is not a good operator for her company.

The operator, who, as far as she is able, protects this equipment by the proper handling of her cords, plugs, jacks, head sets and any other equipment or material that is furnished her, to be used in the daily routine of furnishing service, even though she is not so speedy in answering calls, is the good operator—the operator, who will advance to supervisory positions. For if she can properly handle and safeguard the equipment to the point of giving better service, and to the financial gain of the company for which she works, she also will be able to show others the proper methods and make them of value to the organization.

To my mind, the greatest source of annoyance to an operator, especially during the rush hours, are cord circuits that are out of order. The operator's speed is lessened, for she must watch that she does not make a false move by picking up one of these out-of-order cords.

Cord circuits are the principal tools with which an operator works. As each operator is furnished with a maximum number of cord circuits with which to work, when any of them are out of order, the efficiency of that position and operator is cut down. In the busy hour, this will show on the position meter, and the operator does not get the credit for handling calls she might have had, had all her cord circuits been available.

The operator is responsible to a great extent for the condition of her cords and plugs, due to the improper handling of them.

The maintenance department may, in some cases, be to blame for not making repairs as soon as reported. Sometimes no doubt, the apparatus in connection with the circuit may fail to function properly, but this latter is very seldom.

The most general cause of the failure of a cord circuit is due to the cord in which one or more of the connecting strands has become broken or crossed with another. This is caused, we are told, by the sharp bending of the cord where it enters the plug. We can help greatly to eliminate this by inserting and removing the plugs by grasping the shell of the plug only. The plugs should not be jammed in for, while they will stand a great deal of abuse, they will not stand jamming long as it cracks the insulation which is very thin.

Cord-circuit trouble should be reported to the repair department as soon as possible by the operator in charge. This should be done on printed forms and all information in regard to that trouble designated—what pair, what cord in the pair and what it does or does not do. The plug of the cord that is out of order should be capped by the operator in charge, after she has satisfied herself that it is out of order.

Bad connections are sometimes caused by faulty jacks. This the operators can help eliminate by inserting the plugs in the jacks as straight as possible. Pushing the plugs in at an angle causes the sleeves of the jacks to become worn. It also wears the plugs. This continual wear makes the jacks larger and the plugs smaller. They will, in time, become so bad that some plugs will not make the contact in certain jacks, thus causing cut-outs.

A little care on the part of each operator will help to prolong the life of both the jacks and the plugs, thereby keeping the service up to standard at all times.

Care should also be taken not to strike the lamp caps with the plugs, for broken caps must be replaced and they, too, cost our company money; also they are a source of danger to the operator's hands. There may be a jagged piece of glass left, so they should be replaced as soon as possible.

The ringing and listening keys look strong and sturdy on the keyshelf, but underneath they are of delicate construction and need good care. Do not jam back your listening key, or come down on your ringing key. They work easily and are more apt to work properly if they are handled correctly. They are not as easily fixed as cords and are much more expensive when replacement is necessary.

Operators' head sets, too, should come in for their share of good care. We all know that a good head set is a big asset, especially during rush hours. Keep them clean and dry, and do not pull the plug out by the cord; take hold of the plug and do not put the plug in the jack and then hit it with your hand. Keep your sets in their proper place when not in use. Don't put them on the window sill where they can get full of dust, or don't put them on the radiator so the carbon gets all heated up. The carbon in your transmitter, which helps to put you in connection with the subscriber, is made of coal—and we all know what heat does to coal.

Some operators place a handkerchief in the mouthpiece. Don't do this; if it worked better that way, the manufacturers would provide for that. Stuff the loudspeaker of your radio with a cloth and see what it sounds like. That is the way the operator sounds to the subscriber when the mouthpiece is stuffed with a handkerchief.

Keep the operators' positions free from all articles but cords, plugs, keys, supervisory lamps and things that belong there.

Local operators do not need pens or nail files; use the nail file at home or, at least, in the restroom.

Toll operators need lead pencils—and soft ones. A hard pencil scratches the

### THE HIGHWAY OF SERVICE

**All the wild ideas of unbalanced agitators the world over in their ignorant and pitiable quest for happiness through revolution, confiscation of property, and crime, cannot overthrow the eternal truth that the one route to happiness through property or government is over the broad and open highway of service.**

**And service always means industry, thrift, respect for authority, and recognition of the rights of others.**—W. G. Sibley.

board if a mark is made on it. Then another operator scratches or traces the same mark, and soon there is a deep groove in the wood that can not be removed.

Leave your vanity case and powder puff in your locker.

Take pride in the looks of your switchboard. Your company has given the best it could afford and they are very costly. It is much pleasanter to work at a board that looks clean and free from mars and scratches, and the management appreciates it. They will not forget how you took care of the old board. When a new one is in mind, it is up to you what kind you get.

The information operators should handle the directories with care and keep them neat and posted up to date.

The toll operators should keep their pencils in good condition, ready for use and not wear the points down on the keyshelf woodwork. Do not take them away from the operating room. The toll tickets also have a value; don't waste them. The company furnishes a waste basket, but fool it, and do not use it. Don't have anything to put in it!

The chief operator, of course, should not have to be told about her equipment. She has keys, lamps, pencils, head sets or desk stands on her desk, etc., but she knows that if she doesn't care for hers, the operators will not either.

Then the bottle of ink, or the fountain pen belonging to the chief operator's desk, should never get on the switchboard. If it does and tips over on the keyshelf, it is a bad trouble-maker.

Now a word about the restroom: It is all ours! The company sets it aside for our enjoyment, and no one else uses it. It is of no benefit to the company only as it makes for our comfort and enjoyment while off duty. We can rest, read and talk there. Most of them are provided with easy chairs and couches, stands and lamps, magazines, papers; and some of the larger exchanges even have pianos, victrolas and radios, electric fans, telephones, etc. Let us show our appreciation and keep this room in good condition.

Let us all strive to keep our central office equipment up to the highest efficiency, whether it be with what we work or with what we play. Keep it better and better every day in every way so that we are bound to have that "voice with the smile." One reacts upon the other.

# The Value of Operating Instructions

## Good Instructions the Stepping Stones to Good Service—Personality Study Develops Efficiency—Paper Presented at the Operators' Conference at Joint Meeting of the Northern Indiana and Benton Telephone Associations

By Miss Esther Dysard,

*Supervisor, LaPorte Telephone Co., LaPorte, Ind.*

The opportunity to attend this meeting was welcomed for several reasons: One, that it is a pleasure to meet other operators; another, that I gain something from the different discussions. Still another reason is that it is an experience.

Experience is the best teacher and if this talk is not well given it will be because I am a student in the class of experience in speech-making. My subject is "The Value of Instructions," and, perhaps, the value may manifest itself the more clearly because of these conditions.

Let us take Mary Jones as an example: When she seeks a position as an operator, she may think, "Now all I'll have to do is to watch the other operators work and in a few days will be answering calls myself."

To her surprise, she is informed that certain instructions must be given and possibly, she is given a book of instructions to read. In glancing them over, she will see phrases and expressions that had never entered her mind bearing relationship with telephone work.

Perhaps, she doesn't understand why they are necessary, and she knows she can contrive more suitable phrases to use when Jean Adams, who thinks she's so important, or Mrs. Brown, who copied her mother's cake recipe and won all the prizes, call in.

Her interest in the book is lost for a time when she hears the operators answering signals and an attractive voice and repeating numbers like they just love to do it. Naturally, this leaves Mary Jones in a bewildered frame of mind.

We will say Mary Jones is in the raw material state ready to be moulded into any kind of an operator. These thoughts that she harbors in her mind must be done away with and the correct and respectful attitude to her work established instead.

To do this a clear explanation of the

**"I Trust We Shall See the Value of Instruction and Realize That Good Instructions Are the Stepping Stones to Good Service," Says Miss Dysard.**

switchboard will enlighten her, both on the simplicity and the responsibility of establishing connections. Her interest thus encouraged, the real work of instructing begins. She is eager to establish connections and the correct method of handling the cords and plugs, both for own comfort and for the upkeep of the switchboard, is necessary.

The absolute necessity of testing lines and correct ringing tends to cultivate accuracy. Her voice possibly calls for attention, for "a soft answer turneth away wrath." The correct position of the mouthpiece discourages loud speaking; and the rising inflection used on the last digit of the number, or station designation, encourages higher tones than the gutteral sounds, introducing a clearer and more pleasant sounding voice, thus aiding her in enunciating the numbers more distinctly.

Of course, courtesy is introduced and developed to the fullest extent. Courtesy discourages the desire to use a harsh, rasping voice to relieve her pent-up feelings, and urges her to develop self-control. Training in locating numbers correctly and quickly results in accuracy. And accuracy is a keynote to telephone service.

After Mary has mastered these essentials, she is in a position to develop speed and put a climax to her efficiencies in operating. She realizes that the instructions were the best after all and that these fundamentals of operating will be her aid in developing her talents to a further extent, enabling her, through practice and experience, to obtain a position in a larger exchange.

She has learned that using the methods prescribed in the instructions, educate the subscribers so that when they have occasion to use a telephone in another place, they will be accustomed to standard practice

and will be able to place a call intelligently. Bringing the small exchange service up to the standard, leaves no room for subscribers to compare their service with that of another exchange and complain.

Following the standard instructions in all places ought to place service on a common basis. By standard instructions, I do not mean fixed instructions, but those generally required.

If one office should train its operators by letting the student listen-in with an operator, that student literally "picks up" the habits (but not the instructions), both good and bad of the experienced operator, and may think her sharp replies and prejudices should be carried on as part of the service. Imagine the results if all students were like Mary Jones!

By this method of training the service would be impaired instead of bettered and no advancement would be evident in the office. Other than this the student may be of a progressive nature and such conditions would discourage her.

On the other hand, if this same student has the fundamentals of operating taught her, and she is given a base to lay a foundation on, she can build a house that will stand.

We can take a lump of clay in our hands and form any image to our liking but a student has a mind and personality to consider, some things to encourage and others to discourage. Careful study of her own personality will aid her in unconsciously developing the desirable qualities and moulding herself into an efficient operator.

I trust we shall see the value of instruction and realize that good instructions are the stepping stones to good service and the means of building up the welfare between the public and company. If we all strive to better the conditions in our various offices to this purpose, then the uniformity of service ought to be accomplished.

## The Value of General Organization Meetings and How the Traffic Department Benefits.

By Miss Grace Connelly,
*Assistant Chief Operator, Lima Telephone & Telegraph Co., Lima, Ohio.*

So closely has telephone service been interwoven with the fabric of everyday life in America that most people, including telephone employes themselves, fail to realize the tremendous expansion of the business in the comparatively few years since it was started.

No man is important in himself except as he is able to influence others; any one individual is a mighty small atom in the universe. It is only as we are able to develop others, to bring out the best that is in them, to guide them to things to which they would not have found their way alone, and only as we are able to receive from them what they have to give, that we can grow and become a worthwhile part of things as they are.

To serve efficiently, to keep and increase the business, and to secure the absolute good will of those served, are the elements of what we term service.

An operator should come to work in the morning with the spirit and feeling that she is not going to work because she is required to do so, but because she likes it. She should feel as if every subscriber is her friend and that she is determined, under all circumstances, to give them the best service she is capable of.

Our service should have as its foundation sincere courtesy; then it will convince patrons at all times that we are trying to do our best, even when we cannot give all that the patron has requested.

Poor service is usually due to lack of knowledge and judgment rather than to carelessness or willful inefficiency on the part of the operator, for she, as a rule, desires to make the service courteous and cordial. But, in some cases, it is due to the lack of confidence and faith that they are not doing their work as it should be done.

To hold the business we have, to make our service so indispensable to a patron who, although he may think his telephone is a luxury, will realize that he cannot do without it, that is our purpose. If in sickness, business, or pleasure, he always finds the voice with a smile always ready to serve him, the matter of the small expense involved will fade into insignificance.

Each satisfied subscriber is a booster for new business. When a complaint comes in, take it in a polite and pleasant voice; make it understood that you are doing your best on the call. A complaint received from a subscriber should be followed up to ascertain whether or not the matter has been satisfactorily adjusted; no complaint should be considered as remedied until the subscriber himself is satisfied. Don't argue, but inform him; see his point of view, and make him feel glad that he has called on you to report his trouble.

To get the good will of those we serve, we must be courteous.

A supervisor should work in harmony with her chief operator in reporting all complaints and faulty equipment. Any suggestions you may have in operating that will better the service, she will gladly receive.

Nature completes every little leaf, every little rib, its edges and stem, as exactly and perfectly as though it were the only leaf to be made. So should we form the habit of doing our work complete, not leaving it half done or nearly done.

One of the greatest benefits I feel that we have obtained in our traffic meetings is that spirit of unity obtained by bringing together the two divisions—local and long distance. We have acquired more of the feeling that we are all working for the same end—that of "Satisfactory Service." There is displayed the spirit of helpfulness rather than of criticism, when suggestions or corrections are made; and better understanding between departments and between each other, has been promoted.

But, in order to secure efficient service, the operators, supervisors, and chief operators, and other employes connected with the telephone service should be given information on all decided changes in plans in the method of operation ahead of the changes, so that they may educate themselves to the changes, so as to talk and teach the public intelligently. I have always been a strong advocate of the get-together-and-talk-things-over plan.

There are none of us high in our respective positions and so learned but what we can obtain good suggestions and ideas from others; no business can thrive without the cooperation of all departments. We aspire to do greater and better things, and through cooperation we aim to give better service and make friends of satisfied patrons.

If we expect courtesy, we must reflect it. If the subscriber looks for "the voice with a smile," do they in turn reflect the smile that they expect to see and hear? We have tried to put this before our supervisors, instructors and operators at our meetings—that we must put a smile into our voice if we expect to win the good will of the public.

## Why Figure Zero Is Given Sound of Letter "O."

The practice of calling the figure zero in telephone service O, according to Thomas D. Lockwood, general patent attorney of the Bell system in the earlier days, originated about the same time that the blue bell was adopted as the telephone symbol. This was in January, 1889. The Encyclopedia Britannica in its article on arithmetic, curiously enough, says:

"The zero, called nought, is of course a different thing from the letter O of the alphabet, but there may be a historical connection between them. It is, perhaps, interesting to note that the latter-day telephone operator calls 1907 'one nine oh seven,' instead of 'one nine nought seven.'"

It is evident that the mathematical writer of the Encyclopedia Britannica was not aware that this practice was not casually spontaneous with the telephone operator, but, like everything else in the telephone service, had been engineered with the utmost scientific accuracy of detail to improve the service for the benefit of the subscriber, and that as a result of long phonetic study the pronounciation of "oh" for zero had been officially adopted as correct telephone pronunciation.

## Central West Public Service Co. Buys Belmond, Iowa, Plant.

The sale of the Belmond Telephone Co. of Belmond, Iowa, has been practically completed and about 90 per cent of the stock turned over to the purchaser, the Central West Public Service Co.

# *rowger Automatic Equipment fers Unequalled Facilities - - -*

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With Strowger Automatic equipment all kinds of measured service can be handled with perfect accuracy and with the same unfailing speed as flat rate service.

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## Automatic Electric Inc.

**Factory and General Offices: 1033 West Van Buren Street**
**Chicago, U. S. A.**

When writing to Automatic Electric Inc., please mention TELEPHONY.

# A Progressive Hoosier Organization

## Home Telephone Co., of Goshen, Ind., Located in Remodeled Residence—Description of Building and Its Adaptability for Operating and Business Headquarters of Company Having 10,500 Subscribers on Three Exchanges

By A. D. Boal,

*Advertising Manager, Kellogg Switchboard & Supply Co.*

Telephone property is either a decided asset to a community or a liability—an asset when its buildings, its outside plant and the service it renders reflect sound business management and a faith in the community.

A fine building adds to the outward appearance of any city and helps to give a good impression to visitors. It helps to make living more desirable and to more firmly establish the faith of the residents in their town.

Good telephone service makes business better, and it is a fact that where telephone service is poor, business lags.

Few cities, regardless of size, are more fortunate in their telephone properties, or have more beautiful buildings than that of the Home Telephone Co. of Goshen, Ind. This company, one of the oldest and largest of the Independents in Indiana, was organized in 1899. It operates a total of 10,500 telephones from its three exchanges—Goshen, Elkhart and Wakarusa. One of the notable features of this extensive system is the absence of magneto telephones, local and rural lines being operated on a common battery basis.

Goshen is an attractive little city of 10,000 people, county seat of Elkhart county. It is about 115 miles east of Chicago on the New York Central Lines and ideally located for factories, of which it has some 40. It is on the edge of the Limberlost Swamp, made famous by "Freckles," "The Harvester," and others of Gene Stratton Porter's beautiful novels. It is a city of broad, shady streets, fine homes, schools, churches and modern stores.

The Home company had Bell competition until 1911 when it took over the local exchange. Its growth has been steady and the subscribers served by the Goshen exchange amount to 2,700 including some 250 rural.

In 1923 the Home company had an opportunity to secure a beautiful residential home in the heart of town, and this was remodeled for the exchange building. Constructed of brick and Indiana limestone, surrounded by trees and a spacious lawn, with terraces and broad verandas, it makes an office building that any telephone company might envy.

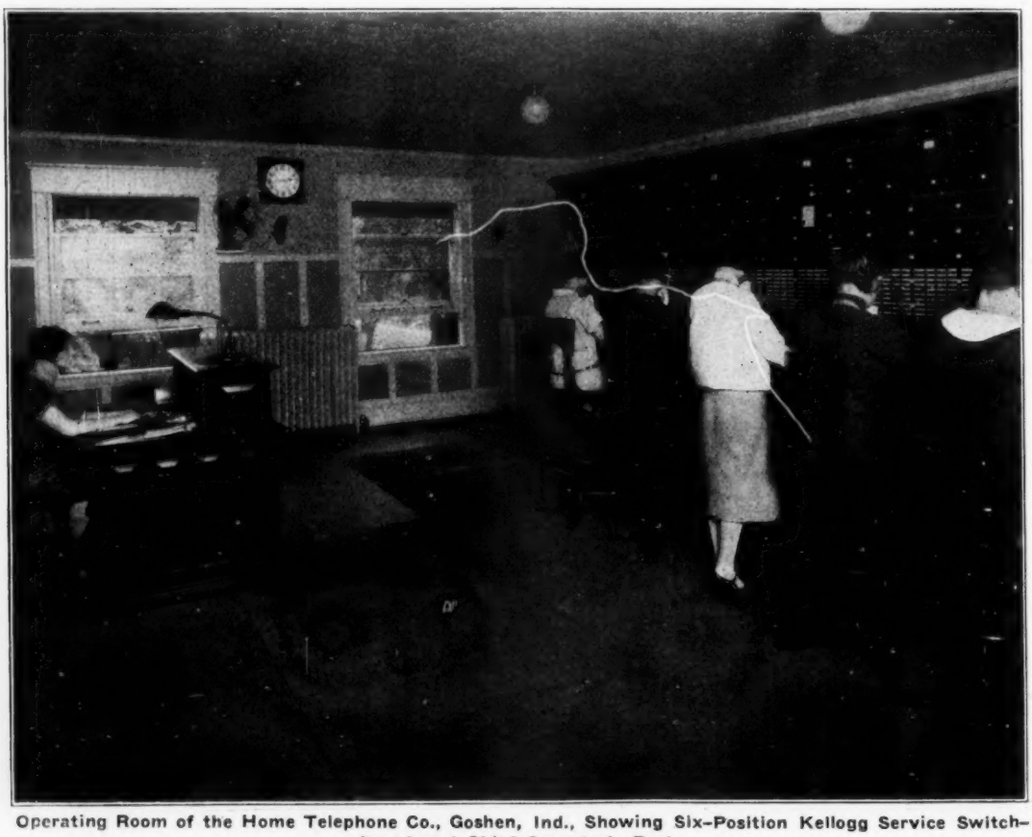
Secretary – Treasurer and General Manager W. L. Shoots Has Been With the Home Telephone Co. for About 20 Years.

The interior decorations and fittings are of the finest and give one an impression of home surroundings not often found in a modern business office. The building is three stories in height and also has a basement.

The main portion of the building occupies a ground space of approximately 45 ft. by 58 ft. with a terrace 12 ft. wide extending across the front, and porches on each end approximately 10 ft. by 20 ft. and connecting with the terrace. The entrance hall opening on the terrace is 18 ft. wide and has a broad mahogany staircase leading to the second floor.

Immediately to the left of the entrance is the manager's office, a room 21 ft. by 20 ft., finished in mahogany with leaded glass doors, mahogany furniture and fine rugs. Just to the rear of this is a room 16 ft. by 20 ft. in which are located the relay racks, main frame, wire chief's desk and power board.

To the right of the entrance is the cashier's window, opening into the general offices which occupy a beautiful room 21 ft. by 38 ft. This room has a large fireplace, numerous windows, and with its handsome decorations, makes a business office which could not be improved. Just back



Operating Room of the Home Telephone Co., Goshen, Ind., Showing Six-Position Kellogg Service Switchboard and Chief Operator's Desk.

Terminal Room and Wire Chief's Desk of Home Telephone Co. of Goshen, Ind., with Wire Chief A. M. Claybaugh at Desk.

A Corner of the Operator's Restroom in the Goshen Exchange. Here Rest and Recreation Are Had During Relief Periods.

of the entrance hall and opening into the general offices is a room 13 ft. by 16 ft. used for the addressing machine, bill posting and other work of like nature.

On the second floor are located the operating rooms, restroom and filing room. The operating room is 33 ft. by 20 ft. and contains a six-position Kellogg service switchboard and chief operator's desk.

Immediately back of this room is the toll room in which is located the combined toll board operated by the Home Telephone Co. in conjunction with the Indiana Bell Telephone Co.

Adjoining the local switchboard room and opening from the hall is a reading room for the operators. In the southeast corner is a larger room, 17 ft. by 20 ft., used as a restroom and containing a victrola, easy chairs, couch, table and other conveniences for the operators.

In the northeast corner of the second floor is a room 13 ft. by 20 ft. which is used for the keeping of records and files.

On the third floor is one large room extending across the entire building. It is the plan of the telephone company to fit this up as a recreation room for the employes.

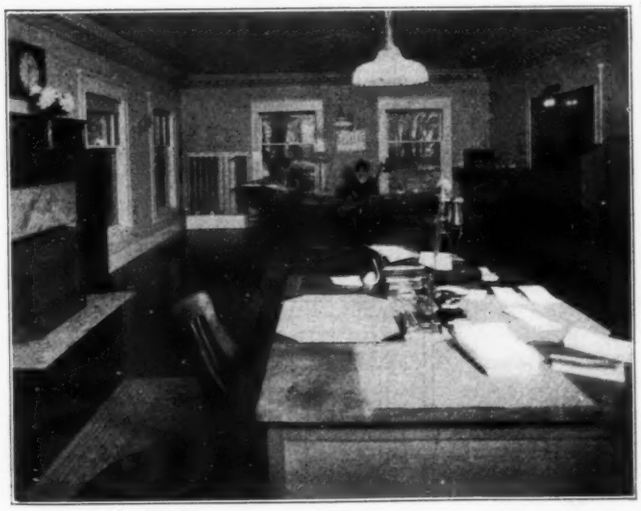
In the basement are located the battery room, work room, heating plant, fuel bins, etc.

Office and Exchange Building of the Home Telephone Co., Goshen, Ind., Remodelled from Old Residence.

At the back of the property are two buildings, one used for material storage and the other as a garage for the cars and motor trucks belonging to the company.

The new switchboard equipment was cut over on October 20, 1925, and consists of two three-position sections and turning section with an ultimate capacity of 4,200 lines, 1,500 of which are equipped at present.

Position No. 1 is a combined local and toll and the other five are local positions. Each of the local positions is equipped with 18 pairs of full-feature cord circuits, having the following features: Keyless listening, automatic answer, peg count, busy test, secret service, four-party harmonic machine ringing, revertive ringing tone, dark keyshelf, instantaneous disconnect on both answering and calling cords, and line lamp recall. The traffic handled through



A View of the General Office—The Manager's Office with W. B. Van Glahn, Auditor, at the Desk.

the Goshen exchange averages about 16,000 local calls per day.

All rural lines are full common battery with eight-party selective harmonic ringing. Because of the heavy traffic with the Elkhart exchange, the first position is equipped with common battery signal, local battery talking trunks. Long distance service is handled over a separate toll board.

Much of the success of the Home Telephone Co. has been due to the management of William L. Shoots, who has been with the company for about 20 years. Mr. Shoots was born on a farm near Bellefontaine, Ohio, and worked for the United Telephone Co., at that place for five years, after which he moved to Goshen and took charge of the Goshen exchange as local manager. Following this, he was made secretary, treasurer and general manager of the entire system, which position he has held ever since.

Mr. Shoots has been unusually successful in building the plants of the Home Telephone Co. from three very small inadequate exchanges in 1905 to their present standing. Other members of the Goshen personnel are W. B. Van Glahn, auditor; Miss Katharine Bremercamp, cashier; Miss Sylvia Thomas, chief operator; A. M. Claybaugh, wire chief, and W. J. Ramsby, superintendent.

## Origins of the Telephone; Inventors Who Blazed Trail.

With the 50th anniversary of the telephone, which was celebrated in London June 24, by the Institution of Electrical Engineers, the names of several rivals to Alexander Graham Bell as claimants to the title of its inventor were put forward. Of these, the most quoted seems to be one Meucci, an Italian refugee in New York, who, in 1871 filed a caveat for a patent on a mechanical telephone apparatus which, he claimed would have been more successful if it had been electrified.

The idea, however, of something in the nature of a telephone had been conceived many years before the time of either of Bell or of Meucci. The Chinese, indeed, claim to have discovered electricity and even some form of wireless some 5,000 years ago; but even if their claims are discounted, there are distinct evidences of partly successful attempt to transmit speech as early as the middle of the 16th century.

Robert Hooke, about 1667, claimed success in "propagating sound to a considerable distance, even through stone walls" by means of a tightly-stretched wire.

Sir Charles Wheatsone, writing in 1821, described an instrument which he called an acoucryptophone that transmitted and amplified musical notes, though he did not claim for it ability to transmit speech.

About this time, or a little later, Sturgeon and Faraday, working independently, discovered than an iron bar could be magnetized by circulating a current of electricity through a coil of wire wrapped round it, and in 1854, Charles G. Page, an American, found that the bar would give out sound when alternately rapidly magnetized and demagnetized. These discoveries were of vital importance, the latter being the germ of the "make and break" system on which Bell's work was founded.

Then in 1854 Bourseul wrote a notable article in "L'Illustration." He instanced a man speaking near a movable disk that was sufficiently pliable to lose none of the vibrations. "Suppose," he said, "this disk alternately makes and breaks the connection from the battery. You may have at a distance another disk which will simultaneously execute the same vibrations." Here, indeed, is the very principle of the telephone.

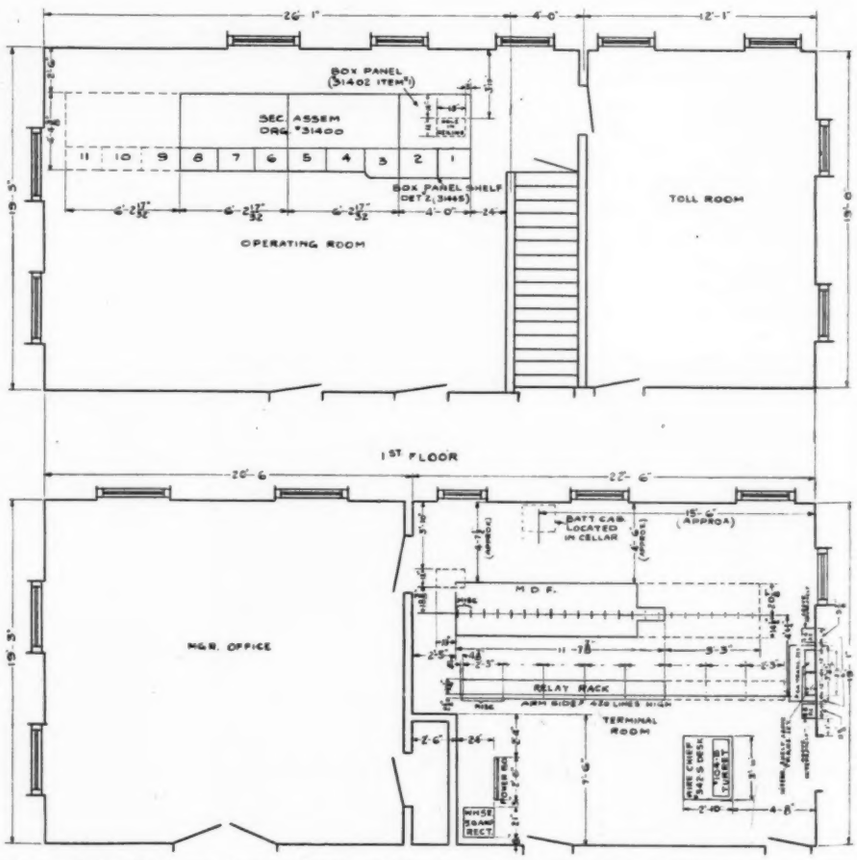
Lastly in 1861, Philip Reiss, of Hamburg, made an instrument which, it is said, successfully transmitted speech, though so faintly as to be almost useless. This instrument is now to be seen in the Telephone Jubilee exhibit at South Kensington (England) Science Museum.

The Foyer and Cashier's Office of the Home Telephone Co. of Goshen, Ind.

## Concrete Type Branch Exchange Building in Japan.

A ferro-concrete branch telephone exchange for Nishinomiya, Japan, is now under construction at a cost of 100,000 yen.

The main part of the new building has already been completed. The opening ceremony is to take place in September or October. The new building has two stories.




Plans of the First and Second Floors of the Office and Exchange Building of the Home Telephone Co., Goshen, Ind.

# Open Forum Questions and Answers

Questions on Plant, Traffic, Commercial and Engineering Matters Answered at Open Forum Meeting During Convention of Up-State Telephone Association of New York by Various Authorities in Different Parts of State

### Small Line Repairs Made by Combination Troubleman.

It is the general observation of the writer that broken insulators, untied wires and broken pins, are to be found on most rural lines. Why are small repairs, such as these, not made by the repairman who is continually patroling the line?

Our company's combination men install new telephones and clear trouble on instruments and telephone lines. Our combination man is furnished with a Ford car with a special equipment body.

These men are instructed to make all small line repairs, such as mentioned in the question. Personally, I think, it would be very foolish to have anyone else do this work as it would mean duplicate patroling of these lines.

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### Service Station Lines Not Profitable for Companies.

Are service station lines profitable? Should they be encouraged or discouraged? Would it be preferable to construct our own lines and serve the people involved on rural line basis?

In my opinion service station lines could not be called profitable on an annual $12 rate. We recently fought out this particular issue before the New York Public Service Commission and proved in an actual annual cost of $12.77, exclusive of any operating profit or any allowance for supplies, materials or working capital, which although small, really should be considered. In fact, it was conceded by the commission that our actual cost figure was somewhere between $12 and $14.

I should say that a $15 rate would pay operating costs and show a small profit on this class of service.

Whether these lines should be encouraged or discouraged is a hard question to answer, as so much depends on the character of the officers on the service station lines. We have some lines which are well-kept and render as good service as our own company-owned lines, but the majority are not so particular and thorough in maintaining their circuits in good condition and these are often a source of trouble to us in our efforts to furnish good service to our patrons.

Generally speaking, it is more difficult to render good service to service station lines than to company-owned lines which the telephone company constructs and maintains in good working condition.

If the mileage were not excessive as compared with the necessary construction cost—in other words, if the required plant expenditure could be justified by the prospective revenue—I would unhesitatingly say, "Yes," to the question of constructing our lines and serving the people on a rural line basis.

However, the primary consideration on which the service company plan is based is to build up telephone connections in sparsely-settled localities where the company does not feel warranted in assuming the expense of building to reach a limited number of people. In such cases there seems to be no other satisfactory method of handling the situation without unduly burdening the telephone company.

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### Radio Interference from Ringing Machines; Its Elimination.

Describe how the central office ringing equipment can affect radio receiving sets, and how it should be remedied.

Since the development of the super-sensitive vacuum tube outfits for louder and more distant reception of radio programs, the public has experienced more or less difficulty in eliminating interference due to local disturbances.

These different forms of interference are composed of frequencies which have harmonics well within the broadcast band and are amplified by the radio receiver along with the broadcast program. Any radio frequency waves originated in the vicinity of the receiving set are quite liable, if allowed to emanate, to produce disturbance in the loudspeaker. This disturbance may be loud enough to make reception of programs more or less unsatisfactory and, in the worst cases, impossible.

Radio frequency currents are set up by a spark which is caused by an abrupt electrical change, such as the opening of a circuit. This, of course, is a common thing in the ringing equipment of a telephone central office, especially when the arcing surfaces of the ringing interrupters or the brushes and sliprings of the ringing generators are not kept in perfect condition. A remedy of this condition, if it exists, is the first step toward the elimination of radio interference from the machines.

In cases where the trouble is not remedied by this procedure, there are two fundamental methods to be applied.

The installation of low capacity condensers across the outgoing leads of the disturbing machine provides a low impedance path for the high-frequency currents within the immediate vicinity of their source so that they are substantially short-circuited.

Inserting radio frequency choke coils in the output leads of the machine makes the outgoing path to connecting lines or circuits of high impedance to the high frequencies, and they cannot be transmitted out.

In some cases, a combination of these choke coils and condensers is required to completely eliminate the trouble. It is important that these condensers, choke coils, or any combination of them which is used, be placed as near the disturbing machine as possible, preferably three or four inches. It is obvious that the lead from the source of the trouble to the apparatus used to eliminate it acts as an antenna; and the shorter this antenna is, the less chance there is for induction into nearby circuits.

In order to maintain the good will of the public and avoid complaints to the radio inspector of interference from the telephone company, it is recommended that steps be taken to eliminate any interference, which can be traced to telephone equipment, as soon as it is found to exist.

A number of telephone manufacturing companies make apparatus for the elimination of radio interference from ringing machines which should be used if the trouble cannot be eliminated by adjustment and cleaning of the vibrating contacts of the interrupters or the brushes and slip rings of the ringing generators.

Another reply to the question of how can radio interference from ringing machines be eliminated, says that when a rotary type of ringing machine, motor-generator, or ordinary magneto causes any interference with nearby radio receiving sets, it is usually due to improperly adjusted brushes, dirty commutator, or collector rings, as indicated by sparking at these parts. The sparking may be hardly visible, yet it may cause sufficient energy to be radiated into space to affect radio reception. Removing the sparking by the usual means employed—such as cleaning contact surfaces, etc.—will invariably stop the interference.

The vibrating type of ringing machines, however, are the worst offenders. As the sparking at the contacts of these machines cannot be wholly suppressed or absorbed, other means must be employed to prevent high frequency radiation. The simplest and most effective method of preventing interference from this type of machines is one which employs the principle of tuning in much the same manner as is used in radio sets to tune out undesirable stations.

A choke coil consisting of 100 turns or

more of rather coarse wire on a wooden spool is placed in each one of the ringing leads as close to the machine as possible. The inductance of these coils are of such value that all radio frequency currents within the broadcast band are suppressed, or "tuned out."

The comparatively low-frequency ringing currents pass through these coils without any difficulty. In some cases it is necessary to introduce these coils in series with every lead connected to the ringing machine to entirely eliminate interference.

The manufacturer of the ringing machines will gladly furnish any further specific information as to the type and number of coils best suited to his type of machine.

## Company Requirement for Extending Rural Pole Lines.

What is the best basis to use in extending rural pole lines? That is, how many subscribers per mile do you require before a pole line and circuit is justified? If a portion of a rural line is financed by the subscribers, do you accept ownership and maintain the line thereafter?

It requires approximately six subscribers per mile to justify the full construction cost by the telephone company to build pole line and string wire in rural communities. This condition of six subscribers per mile is seldom encountered. Unless the proposed extension is on a highway and the line would be extended at some future date to reach additional subscribers, we would request the subscribers to contribute towards building the pole line to an extent whereby we would receive a return of 35 per cent the first year.

It is our practice, where subscribers help finance the building of pole lines, to purchase the poles at 10 cents each, if located on the highway, and we assume the maintenance thereafter. Where subscribers build their pole line over private property, and where such pole line will not be used by other subscribers, we do not accept ownership in poles or wire, and charge the subscriber for any maintenance we do on the private spur.

## The Fields of Magneto and Common Battery Services.

What are the principal advantages of common battery service over magneto? How does maintenance compare?

The economic and practical choice between a magneto or a common battery system for a comparatively small exchange should always be a matter of detail study of the specific case. No cut and dried rule can be given for the selection of one or the other. They both have advantages and faults.

Generally for exchanges in small towns, where a majority of the subscribers are located several miles from the central office, the system should be of the magneto type; on the other hand for exchanges in larger towns and small cities, where a majority of the subscribers are located within a highly-developed area, the central office should be of the common battery type.

The problem is rather one of location and character of subscribers, for long magneto lines can be maintained for less cost than long common battery lines.

As the common battery board supplies the substation with energy from a central battery, the expense of installing and maintaining local batteries is removed, the cost of substation maintenance is largely reduced, the station simplified and cost lowered by the omission of the generator, and the operation of calling and clearing-out reduced to the mere removal and replacement of the receiver on the hook-switch.

Magneto switchboards are the original type of board and in small units are used on account of their simplicity and reliability and the ability of the lines to give service even under comparatively poor maintenance practices. In point of cost, a magneto switchboard of 100 lines costs 10 to 20 per cent less than a comparative common battery board and the magneto subscriber sets cost 25 to 30 per cent more than common battery sets.

Transmission supervisory and noise troubles are experienced on long, common battery lines which it is impossible to correct, whereas similar lines operated on a magneto basis would be practical.

The true answer to the question is that both systems have their advantages and it is a matter of study as to their economy in any given community.

## Gauge Testing of Jacks of Magneto Switchboards.

Is it essential to gauge-test magneto switchboard jacks, and, if so, how often?

It is good practice to gauge-test the line jacks of magneto switchboards once a year, except that in the case of trunk jacks, which naturally receive the most use, the test should be made twice a year. The Western Electric Co. makes a special tool for this purpose, known as the No. 33 jack gauge. If this gauge will go into the sleeve of the jack, all the way, without undue pressure, the jack should be replaced, if not, the jack should be left in service.

If there are any jack springs which appear loose or out of adjustment, it is a good plan to connect a battery and receiver in series with a plug placed in the jack. Then move the free end of the plug sidewise, in all directions, as far as it will go, and listen in the receiver for scratches or clicks, which denote poor spring contacts or actual momentary opening of the circuit. The springs can be readjusted with Western Electric No. 117 and No. 118 tools, which are made for the purpose.

An annual test on the jack sleeves in magneto boards may seem rather frequent as compared with the practice on common battery multiple boards, which is once in about three years, but the rather obvious reason is that most magneto boards are non-multiple and, consequently, the line jacks are used more frequently, as a rule.

It is desirable in making the foregoing test to use a standard form showing the date, location, line number, result noted, name of inspector, and other remarks. This should be forwarded to the supervisor of equipment maintenance, or other equivalent employe who is in direct charge, who will pass on the report and then issue orders for such replacements as appear justified.

By this method there will be a general check on the routine work of the inspector and proper supervision can be maintained over the equipment.

## Standard Multiple Markings on Switchboards of Small Companies.

Do all the smaller companies use the standard multiple markings on their switchboards?

In general smaller companies do not use the standard multiple marking on their switchboards. This answer is based on our visits to connecting company offices in our territory, where it has been noted that in some instances no markings at all are used.

It is our opinion that it is absolutely essential to have some standard routine for switchboard marking for smaller companies. We do not believe that heretofore particular attention has been paid to this matter by the smaller companies.

In the New York Telephone Co. a traffic department instruction for standard switchboard markings for smaller offices is in effect and strictly carried out. We have from time to time encouraged the connecting companies to adopt a routine similar to the one in effect in our company and in some instances they have, but in general I do not believe a standard switchboard marking is in effect among the smaller companies.

## Sterilizing the Mouthpieces of Operators' Transmitters.

Do the smaller companies make it a practice to have the operators' transmitter mouthpieces washed with soap and water at least once a month?

In answer to this question it is my opinion that in small offices transmitter mouthpieces are not properly sterilized each month. In some small offices there is only one operator's set and the operators change during the various hours of the day, no attention being paid to sterilizing the mouthpiece.

I believe that in all offices individual sets should be supplied to each operator. Where the suspended type of transmitter is used, each operator should have a mouthpiece for her own individual use.

# Cook No. 6 Lightning Arrester
# Aerial Wire Protector

This is a pole top arrester of the saw tooth air gap type with capacity to protect ten wires.

The brass discharge clips are held securely in grooves in the porcelain base with brass bolts and nuts.

The ground side of this arrester is a reversible carbon block common to all of the dischargers.

Tapered holes run through the heavy porcelain base for wire connections which are made on top of the porcelain. The insulated ends of tie-wires should be drawn into these tapered holes to make the arrester dust-proof.

The 6-A is equipped with a copper bus bar across each side of the discharge clips for use on a single pair.

The arrester is regularly equipped with a cast iron or galvanized hood.

## COOK ELECTRIC COMPANY

**2700 Southport Ave.** **Chicago, Illinois**

When writing to Cook Electric Co., please mention TELEPHONY.

# Here and There in Telephone Work

### Apartment Unique of Movie Actress Equipped with Telephone.

Recently Miss Edna Kirby lived for one week in "her own original apartment unique in a glass house" built in the windows of Hale Brothers store in San Francisco, Calif., where a special telephone was installed for her use. This was connected up so that she could get outside calls or call any department in the store.

Miss Kirby will be remembered by movie fans as the pretty girl who played opposite Harold Lloyd in "The Sailor-Made Man," and was invited by Hale's to come to San Francisco from Hollywood to demonstrate how thoroughly that store contributes to complete comfort and happiness in the home.

Miss Edna Kirby Telephoning from Her "Apartment Unique" in the Windows of Hale Brothers Store in San Francisco.

In her glass house she had all that a woman's heart and fancy desire. It was just like having a magic carpet at her command. She had only to telephone for something and it was hers. All the stock of the great store was at her service. Here in this apartment unique she lived, dined, worked, played and wore pretty clothes and entertained before the gaze of thousands of people quite as if her apartment were of the usual sort—shut off from the public by walls of brick and plaster.

The idea of living in an apartment in a store window was original with Miss Kirby, who has had the idea copyrighted and has just started on a tour of the cities of America where she will live for one week in an apartment built in the window of some representative store, and will have a telephone installed in each place just as she did in San Francisco.

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### Home Company of Ft. Wayne Issues Employes' "Office Manual."

An "Office Manual" containing information for the guidance of its employes was issued early this year by the Home Telephone & Telegraph Co., of Fort Wayne, Ind.

This attractive, illustrated 40-page booklet, 5 inches by 7 inches in size, presents general rules and regulations governing the duties of employes and their conduct with the company, and sets up standards of correct practice covering the relations of the company with its subscribers, with its employes, with those from whom it buys its materials and supplies, with the public in general, with the public service commission and with connecting companies. These standards are similar to the code of ethics adopted by the United States Independent Telephone Association at its 1923 convention.

Complete information is given as to the working hours of various employes, legal holidays observed, pay days, time of opening and closing various offices of the company, vacations, employes' record cards, use of bulletin boards, care of equipment and numerous other details on which the employe should be informed.

On the subject of courtesy the manual states in part:

"One of the first requisites for good service is courtesy, a most wonderful business builder. Therefore, courtesy must be shown by all employes. Each employe can make friends innumerable for the company by extending courteous treatment at every opportunity in the course of the day. Each can, by courteous treatment toward the public, improve the company's service, for service is a broad word and covers all our business dealings and relations with the public.

In fact, no matter how good the service from the standpoint of promptness, dependability, efficiency and all-around physical quality, the impression left by personal contacts with employes is a most potent factor in the customer's determination of his estimate of the service. Therefore, let each employe practice courtesy at all times in order that the company may be known for the good service it renders.

Courtesy is one of the best possessions of an employe. So let not one of us willfully or thoughtlessly commit a discourteous act that may react upon the company or his fellow employes and offset the best efforts of all of us."

According to the manual, a valuable and efficient employe is recognized because:

"1. He is honest, trustworthy, competent and industrious.

2. He is always loyal to his employer and works for the company's interest.

3. He upholds the dignity of his position and the company.

4. He respects the rights of others, is courteous at all times to fellow employes and the public alike, and never argues with a customer.

5. He is informed as to the company's rules, regulations, policies and practices.

6. He admits a fault when it is pointed out to him, takes correction gracefully, and does not sulk.

7. He avoids gossiping.

8. He does not waste time, but endeavors to give an honest day's work for an honest day's pay.

9. He does not deface walls, damage furniture and fixtures, waste supplies, or burn lights needlessly.

10. He does not watch the clock.

11. He does not visit during working hours.

12. He respects authority and is cheerfully obedient—never insubordinate—and does not criticize or discredit his superiors with his fellow employes.

13. He takes a kindly and friendly interest in the new employe, helps him to learn his duties, to get a conception of the importance of the telephone business, to grasp its fundamentals, to comprehend its traditions and to understand its romance.

14. He so conducts himself in the pres-

NEW ISSUE

# $800,000

# State Telephone Company of Texas

**First Mortgage Fifteen-Year 6% GOLD BONDS**

**Series "A"**

Dated July 1, 1926 Due July 1, 1941

Interest payable semi-annually January 1st and July 1st at the office of the Chicago Trust Company, Chicago, Illinois. Coupon bonds in interchangeable denominations of $1,000, $500 and $100. Redeemable as a whole or in part at the option of the Company on any interest date up to and including July 1, 1930, at 105 and interest; thereafter to July 1, 1934 inclusive at 103 and interest; thereafter up to and including July 1, 1938, at 102 and interest; thereafter until maturity at 101 and interest. Company pays Normal Federal Income Tax Not in Excess of 2%.

CHICAGO TRUST COMPANY, TRUSTEE

*From information in our files, appraisals, engineers' reports, and so forth, and letter from President of the Company, we summarize as follows:*

BUSINESS AND TERRITORY: The State Telephone Company of Texas will own and operate modern telephone systems in Texas and New Mexico supplying 57 communities located in 25 counties in Texas and 3 in New Mexico with telephone service, operating 6,898 Stations. This includes exchanges in 20 county seats and approximately 1,100 miles of toll lines extending from New Mexico to Oklahoma. The toll revenue constitutes over 40% of the gross earnings. The toll lines are physically connected with the system of the Southwestern Bell Telephone Company, a subsidiary of the American Telephone & Telegraph Company, assuring toll connections throughout the United States. The territory to be served is one of the most rapidly growing sections in the country and there is every indication that its growth will continue at a rapid rate. Population now about to be served is estimated in excess of 100,000.

PROPERTIES: The properties, a consolidation of 10 independent telephone companies, are located in the lower Panhandle district of Texas and the Eastern portion of New Mexico. The physical properties include 32 modern telephone exchanges, 25 toll stations and 2,000 miles of pole lines. The majority of the properties are new and all are in good condition.

SECURITY AND VALUATION: These bonds will be secured in the opinion of counsel by a direct first mortgage on all of the fixed property and other assets of the Company as stipulated in the Trust Indenture. The combined value of the above properties as appraised by Spooner & Merrill, inclusive of materials, supplies and development cost, and after making deductions for depreciation, is $1,417,731.

| EARNINGS | For 12 Months ended March 31, 1925 | For 12 Months ended March 31, 1926 |
|---|---|---|
| Gross Earnings | $241,724.52 | $299,286.96 |
| Operating Expenses, Maintenance and Taxes other than Federal Taxes | 121,604.60 | 146,155.18 |
| Net Earnings | $120,119.92 | $153,131.78 |
| Bond Interest (this issue) | | 48,000.00 |
| | | $105,131.78 |

Net Earnings over 3.19 times the interest requirements of this issue.

PURPOSE OF ISSUE: The proceeds from the sale of this issue will be used, in part, for the acquisition of these properties.

SINKING FUND: The mortgage under which these bonds will be issued will provide that the Company shall pay into a sinking fund on July 1 of each of the years 1928 to 1932 inclusive, 1%, and shall on July 1 of each succeeding year thereafter, pay 2% of the amount of bonds of said series outstanding on the date of each deposit, such deposits to be made with the Trustee and to be applied towards the redemption or purchase of said Series "A" bonds.

MANAGEMENT: The management of this Company will be in the hands of efficient and progressive operators, Messrs. A. C. and E. H. Hendricks, who have been operating a major portion of these properties for many years.

We offer these bonds if, when and as issued and received by us, subject to approval of legality by counsel. Books and accounts of the Company have been audited by Messrs. Haskins & Sells, C. P. A. Valuations have been made by Messrs. Spooner & Merrill. Legal details will be passed upon and approved by Messrs. Chapman, Cutler & Parker.

**Price: 98 and Accrued Interest to Yield 6.20%**

Detailed Circular and Map of Territory Served Sent Upon Application Without Obligation.

**PAUL C. DODGE & CO., Inc.**
**10 So. La Salle Street, CHICAGO**

**F. N. KNEELAND & COMPANY**
**Harris Trust Building, CHICAGO**

*The information contained in this circular, while not guaranteed, has been obtained from sources we deem reliable and is that upon which we acted in the purchase of these securities.*

ence of the new employe as to inspire in him the 'spirit of service' and the desire and purpose to serve loyally and efficiently the company."

The value of good will and some suggestions as to how employes can help in goodwill building are given in the following:

"Good will is a most valuable asset to any corporation, but to the public utility such as the telephone company it cannot be measured in dollars and cents. It is invaluable to the company, although intangible in nature, because of what it accomplishes. Therefore, let all of us collect good will for the company and ourselves.

How can we do it? By courteous, considerate treatment of our customers in our contacts with them, in face-to-face transactions, over the telephone, or through correspondence. The employe can and should do his share to build good will for his or her company. The knowledge that the company has the good will of its customers and the public at large should be a source of much satisfaction to all of us. Our respective tasks are made easier and more pleasant.

Good will makes collections easy, 'trouble-shooting' a real joy, installation a pleasure, maintenance of the plant 'lots of fun,' construction work attractive, the securing of new business a sunny task, and the operation of the plant most agreeable."

The booklet also contains a brief history of the Home company of Fort Wayne, photographs of its various offices, and floor plans of the main office, Anthony.

On the last pages are forms in duplicate to be filled out by new employes which read: "I have read this manual and fully understand and agree to abide by the rules and regulations contained therein."

In a foreword Frank E. Bohn, vice-president and general manager of the Home Telephone & Telegraph Co., says:

"The telephone has grown to be one of the most potent factors in the welfare and development of the world. The business of rendering telephone service ranks among the largest in the country. No other public utility touches so intimately the lives and business of the community. Anything calculated to help those engaged in the business or profession of rendering this public service, to think clearly and to act honorably, is a distinct step in advance.

This manual contains information for the guidance of our employes and general rules and regulations governing their duties and conduct with the company and sets up standards of correct practice, covering the relations of our company with its subscribers, with its employes, with those from whom it buys, and with the public in general, based on the spirit of the Golden Rule."

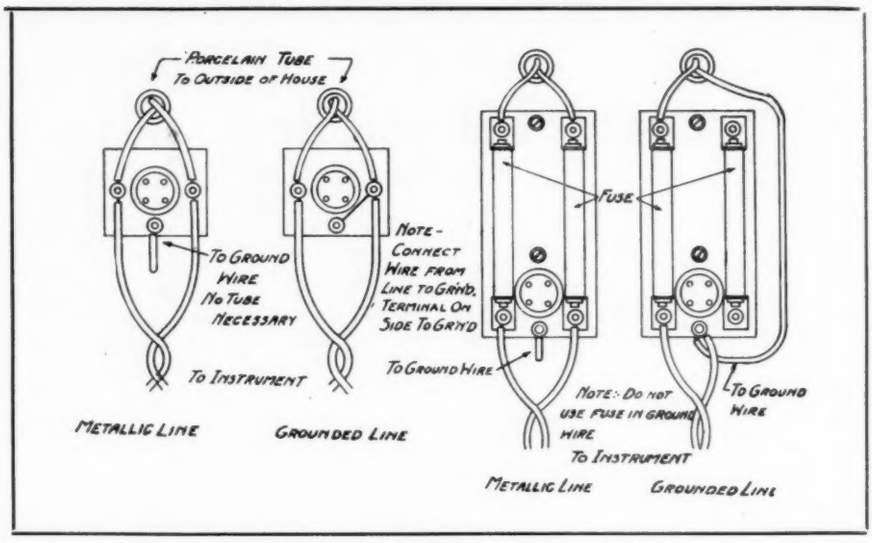
## Bulletin on "Use and Care of Farm-House Telephones."

"Use and Care of Farm-House Telephones" is the title of Bulletin No. 12, recently issued by the Engineering Extension Department, Purdue University, La Fayette, Ind. It is written by Prof. R. V. Achatz, engineering specialist in electrical communications. Being prepared, primarily, for those who have had little or no telephone experience, technical terms and descriptions have been eliminated as far as possible.

The function of the various parts of the magneto telephone are given in addition to a brief description of them. Taking up the installation of sets the details are explained in connection with a diagram giving the recommended method of wiring for a ground return set.

Diagrams are also used to illustrate the installation of lightning arresters. The discussion tells where the arrester should be placed and also when the fuse-type arrester should be used.

In connection with the discussion of common telephone troubles and how to repair them, a chart is used, listing the various troubles and indicating in what part of the equipment they are likely to be found, with a suggested remedy.

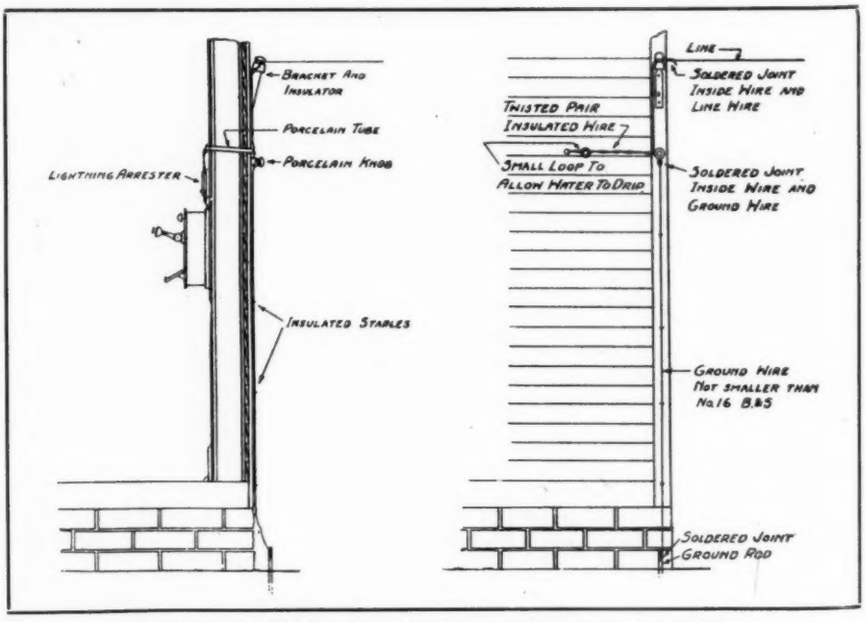



Method of Connecting Wires to Telephone Protectors.

## Lauds "Phone-for-Food" Plan as Good Economics.

Writing on the chain-store grocery business in a recent issue of "Commerce and Finance," a grocery trade expert sums up the advantages of the "Phone for Food" movement, which is making such notable progress among independent grocers.

"The selling of goods by telephone," this authority declares, "proves up economically in a surprisingly convincing way." The economic value of the plant, he points out, is due to the fact that "it cuts selling time, selling costs, increases the size of the average order, reduces store congestion, lowers store rentals, and levels off 'peak hours' of trade (both in the day and through the week)."


BRACKET AND INSULATOR
PORCELAIN TUBE
PORCELAIN KNOB
LIGHTNING ARRESTER
INSULATED STAPLES
LINE
SOLDERED JOINT INSIDE WIRE AND LINE WIRE
TWISTED PAIR INSULATED WIRE
SMALL LOOP TO ALLOW WATER TO DRIP
SOLDERED JOINT INSIDE WIRE AND GROUND WIRE
GROUND WIRE NOT SMALLER THAN No.16 B.&S.
SOLDERED JOINT GROUND ROD

Recommended Wiring for Telephone on Ground Return System.

# UNIFORM CAPACITY
—means better service
# STAYING POWER
—means longer life

## FRENCH BATTERIES HAVE BOTH

### *Standard tests for telephone batteries reveal two things about French Batteries*

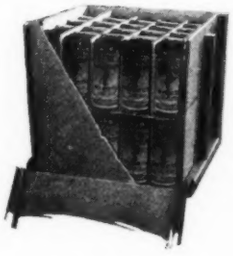
***First,*** French batteries deliver steady, uniform, voltage. Your subscribers don't have to whisper into the transmitter when the batteries are new, or shout to make themselves understood a few days after the batteries are installed. That means better telephone service.

*Second,* French batteries *last.* Your linemen aren't forever making trips to make battery replacements. So you not only save on batteries—you buy French batteries less often—but you save on installation costs.

### *New Improvements*

***Brass Dowel Post.*** Full contact and perfect connections are now made sure in French Batteries by screwing a brass dowel post into the center of the carbon pencil. This is shown in the illustration at the left. No chance for separation of metal and carbon now at any time during the entire life of the cell.

***Spring Connectors.*** If preferred, French telephone cells can now be furnished with either flat spring clip terminals as illustrated, or screw connectors.



***Packing.*** Barrels are out of date in packing French Batteries. A new type of box has been developed to meet the requirements of the telephone field. The illustration shows its construction. Each cell is upright by itself, its label clean and no chance of damage or short circuits. The box is corrugated fibre with egg-crate partitions and is bound with wire. No straw or excelsior used for packing. One man can handle a case of 50 without assistance.

### *Ask Your Supply House*

Be sure you get the advantages of these new improvements in French long-life batteries right away. Specify French Batteries on your next order. They are sold through telephone equipment manufacturers and leading electrical jobbers throughout the country. There is a stock near you.

**FRENCH BATTERY COMPANY**
**MADISON, WISCONSIN**

*Branches:* Minneapolis · Kansas City · Atlanta · Dallas · Chicago · New York
Cleveland · Detroit · Pittsburgh · Denver · Boston · Los Angeles

# Personal Notes From the Field

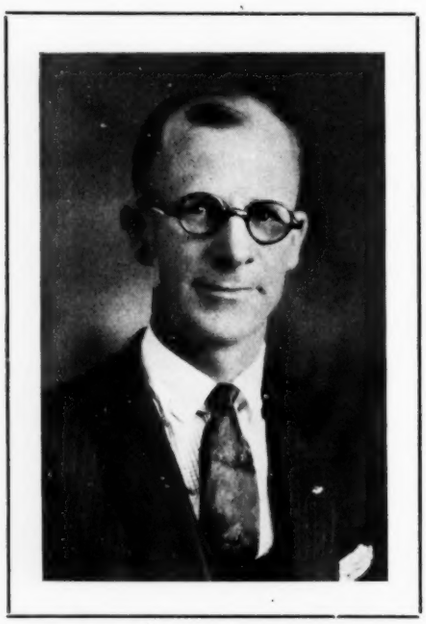
**Hiram D. Currier,** well known telephone engineer, and for many years chief engineer of the Kellogg Switchboard & Supply Co., has the heartfelt sympathy of his many friends in the telephone field in the death of his entire family as the result of an automobile accident on the Dunes Highway near Gary, Ind., July 23.

Mrs. Currier, her sons, William, 11 years old and James, 19 years old, with Walter Ditchburne, 12 years old, were returning to Chicago after dark Friday evening, July 23. James was driving the touring car when it crashed into the rear of a parked automobile truck which did not have a tail light. The engine of the touring car was thrust back into the tonneau of the car, crushing all four occupants.

Mrs. Currier and her son William were dead when aid arrived. Walter Ditchburne died Saturday and James Currier passed away on July 26.

Mr. Currier recently left Chicago on an extended business trip and it was not until several days after the terrible accident that efforts to locate him were successful.

Walter Hughes, of Miller, Ind., driver of the truck, told police he had stopped his truck which had run out of "gas." He was on his way to get a fresh supply



**W. W. Straight, President of the South Dakota Telephone Association Is Also Manager of the Crooks (S. D.) Telephone Co.**

when the touring car hit his machine, he said. He was taken into custody and held on a charge of man-slaughter.

**William W. Straight,** secretary and manager of the Crooks (S. D.) Telephone Co., and president of the South Dakota Telephone Association, is an Iowan by birth, although practically all of his telephone experience has been in the state of South Dakota.

The town of Logan, Iowa, registered his birth on June 7, 1888. After his education in the grade and high schools of Logan, Mr. Straight entered telephone work at the early age of 17 with the Canton Co-operative Telephone Co., at Canton, S. D.

Two years later, in 1907, he was employed as lineman by the Citizens Telephone Co., of Sioux Falls, S. D. When that company was taken over by the New State Telephone Co., of Sioux City, Iowa, two years later, Mr. Straight continued with the New State company, for three years working as troubleman and lineman and for seven years as wire chief at Sioux Falls, S. D. In 1919 he was tranferred to Sioux City, Iowa, as toll wire chief, leaving that position in 1921 to become secretary and manager of the Crooks Telephone Co., his present affiliations.

For several years Mr. Straight has been active in state association work in South Dakota. During 1925 he held the office of president of the South Dakota Telephone Association and at this year's convention, held in January, he was re-elected.

In addition to his duties in operating the Crooks telephone exchange, a small growing company which is now serving some 200 subscribers, Mr. Straight is postmaster of Crooks, and is secretary of the local commercial club. He is a member of four Masonic organizations, including the Shriners, and of the Elks at Sioux Falls, S. D.

As busy a man as he is, Mr. Straight manages to find some time for his recreational hobby—golf.

**R. M. Woolfolk,** who has been actively engaged in the telephone business for the last 17 years, has been named to fill the newly-created position of directory sales supervisor with the Lincoln (Neb.) Telephone & Telegraph Co. He began as a troubleman with the Pioneer company at Oak City in 1909, and after a time in the switchboard room stepped in 1913, into directory sales work, a specialty he has followed since then. Ill health forced his resignation, but he re-entered the work at Wichita, Kans., as directory sales manager for the Southwestern Bell Telephone Co., later going to Kansas City. He was promoted to the position of state supervisor of this work for Kansas, with headquarters at Topeka, and was there three years.

Because of his exceptional ability, Mr. Woolfolk was promoted to the position of general directory sales manager for the Southwestern Bell, covering the states of Missouri, Kansas, Oklahoma, Arkansas and Texas, with headquarters at St. Louis. During the four years he was in charge, he introduced many of the practices now in effect on that system.

In 1923 he resigned his position with the Southwestern Bell to accept a similar posi-

**R. M. Woolfolk Has Been Made Directory Sales Supervisor With the Lincoln (Neb.) Telephone & Telegraph Co.**

tion with the Con P. Curran Co., of St. Louis, going from there two years ago to accept a better position with the Reuben H. Donnelly Co. of Chicago. He is recognized as one of the ablest men in directory sales work at the present time, and goes to the Lincoln company as one of the staff of W. E. Bell, commercial superintendent. He took charge July 15.

**Frank Kubat** has been named manager at Geneva, Neb., to succeed **A. E. Holt,** who has been transferred by the Lincoln Telephone & Telegraph Co. of Nebraska to the office at York. Mr. Kubat's place as manager at Shelby has been filled by the appointment of **Clyde Yorty** of the company's staff at the David City exchange.

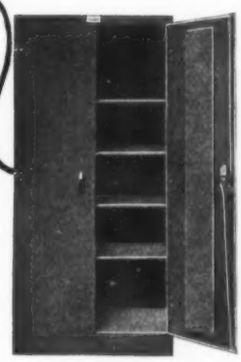
**Frank H. Woods,** president of the Lincoln Telephone & Telegraph Co., Lincoln, Neb., entertained J. B. Edwards, president of the Kellogg Switchboard & Supply Co., at his summer camp on one of the Apostle Islands, in Lake Superior, July 24-26. "J. B." returned with some startling stories and has agreed to supply photographs to prove his statements about the wild life of the Lake Superior region.

**H. L. Harris,** executive vice-president of Theodore Gary & Co., is spending a week's vacation fishing in northern Wisconsin.

# LYON STEEL EQUIPMENT

*Locker No. 854*

In space only 36" x 20" this locker provides accommodations for seven persons, for coats, hats and private compartments with individual locks.



*Tu-dor Cabinet*

For safe storage. Size 36" x 18" x 78". Four shelves adjustable on 1" centers. Three point locking device.

## Storage for Horns

The illustration above shows how Lyon designers have worked out a satisfactory storage box for transmitter horns. The floor area taken up is less than two square feet. The box is divided into two compartments.

This strong, rigid, neat, specialized box with its close fitting lid and its lasting finish of green baked enamel is typical of the fitness and quality of the Lyon Steel Storage Equipment, as developed for the particular needs of the telephone industry.

More than a score of special items mark the progress made by Lyon Engineers in service to the one industry. A coast to coast popularity for Lyon Equipment has been the result.

Perhaps our broad experience over many years can be of help to you. Quite possibly we have worked out already the very problem that now confronts you. Write us your needs.

*Cord Cabinet*

This 15" x 15" x 78" wire chief's cabinet in green enamel, is furnished with seven cord hooks.

*Janitor's Cabinet*

Two shelves, two bins, extra shelves if needed, adjustable on 1½" centers, equipped for locking.

*Scrap Box*

A fixed divider separates this special wire box into two bins, with the cover of one bin marked "Scrap" and the cover of the other marked "Good."

*Li-flat Cabinet*

For maps, tracings, blue prints, etc. Five sizes. Five drawers to a section. Standard green enamel finish.

LYON STEEL PRODUCTS

**LYON METALLIC MANUFACTURING CO.**

AURORA - ILLINOIS

| | | | |
|---|---|---|---|
| BOSTON | 161 Devonshire Street | LOS ANGELES | 337 S. Anderson Street |
| CLEVELAND | 815 Superior Avenue, East | CHICAGO | 230 E. Ohio Street |
| PITTSBURGH | 437 Smithfield Street | DETROIT | 149-159 W. Fort Street |
| ROCHESTER | 61 South Avenue | NEW YORK | 342 Madison Avenue |
| PHILADELPHIA | 121 N. Broad Street | SAN FRANCISCO | 906 Hobart Building |

*Authorized Agents in Other Principal Cities*

# What the Commissions Are Doing

## Up-to-the-Minute News Regarding the Activities of State and Interstate Commissions, Courts and City Councils in Matters Concerning Telephone Companies—Summary of Commission Orders and Schedule of Telephone Hearings

### Must Satisfy State of Impossibilty of Operating Exchange.

Earl R. Shaner, owner of the exchange at Bartlett, has been informed by the Nebraska State Railway Commission that every public utility owner is under legal obligation to continue to operate his business until such time as he has satisfied the state authorities that it is impossible to do so and to the point where a court would be likely to hold that the property was being confiscated for private use. This does not mean that he would have to continue at a loss indefinitely. The law does not require this, but it does leave open the way whereby adequate rates can be secured and sufficient revenues are made possible.

The commission says that, if Mr. Shaner wishes to push the application for closing the exchange, it will be necessary for him to make a definite showing with such data as are available as to revenues, cost of operation and other matters that enter into the determination of rates. After that it will be necessary to appoint a date for a hearing, and give the people affected an opportunity to make their protests and counter representations.

A. L. Bishop, lawyer and banker, has again voiced his objections. He says that the bank doesn't pay, but they must hold on, and that if Mr. Shaner would give proper service he would have a sufficient number of subscribers. At present there is no service at all. Even Mr. Shaner's own brother-in-law ordered his telephone out because he could not get service. He says Mr. Shaner told others that he was doing all right financially.

Again referring to the fact that Mrs. Shaner recently purchased a new car, Mr. Bishop says: "It would take some effort for a woman to run an exchange and a new car at the same time, especially where the car must go, whether the exchange runs or not."

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### Affairs of Consolidated Company, Moultrie, Ga., Wound Up.

In a final hearing in the case of the Consolidated Telephone & Telegraph Co. before Judge W. E. Thomas at Thomasville, Ga., on July 10, the receiver of the company, W. A. Pringle, was ordered by the court to pay $15 per share to all shareholders of the company.

Under the order of the court the entire property of the company was sold last June to J. L. Kirke of Florida. The amount paid was $85,000. This property included the lines and stations in Moultrie, Pavo, Barwick, Boston, Morven, Pine Park and Sale City. There is $200,000 of stock outstanding at par value of $100 per share and the shareholders receive $15 per share as a final accounting.

There is still $4,000 held in the treasury pending such emergency needs as might arise. All debts assumed by the stockholders and company, however, have been paid, as well as court costs, attorneys' fees and incidentals. Mr. Pringle, who has been receiver of the company for four years, is still retained pending the disbursement of the small amount left.

The hearing before Judge Thomas was the final wind-up of the affairs of the company.

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### Indiana Company Granted Rehearing in Rate Case.

Rehearing before the Indiana Public Service Commission in the petition of the Hope Independent Telephone Co. for an increase of rates for service from exchanges at Hope and Hartsville in Bartholomew county and the Cave, St. Paul and Flat Rock exchanges in Shelby county, has been set to be held in Hope on Tuesday, August 17.

A hearing was held on this petition January 15, 1926, and a finding was given by the commission on January 29, in which the petition of the Hope Independent Telephone Co. for increased rates was denied. The petitioning company filed objections to the finding of the commission and asked that a rehearing be granted in the case.

The petition for an increase of rates stated that the return from service given by the Hope Telephone Co. is not sufficient to meet the operating expenses; furthermore, that the company is unable to make necessary repairs and improvements under the rate that is now in effect.

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### Massachusetts Investigates Telephone Charges of Hotel.

The Massachusetts Department of Public Utilities recently held a hearing in Boston on the question of regulation and supervision of telephone service when furnished by other than telephone companies. The principal parties affected by any such legislation are hotels, and several representatives of leading hostelries of the state appeared in opposition to legislation on this matter.

The Boston and Massachusetts Hotel Associations were represented and said that their members charge from 10 to 15 cents for a local call from rooms in their hotels and assess a charge of 15 cents on all toll calls less than $1, and 25 cents for those in excess of $1. They opposed any legislation that would seek to regulate this fee, as they claimed they were losing considerable money in furnishing this service.

Previous to the recent advance in telephone rates in Massachusetts most hotels charged 10 cents for a local call, but as their expenses were increased by the rate advance, they raised the fee to 15 cents. A few small hotels make no extra charge, it was stated, and permanent guests of all hotels were excepted.

In support of their case, the associations submitted questionnaires that had been sent to all their members, which showed that every one was experiencing a loss on telephone service. The Copley Plaza at Boston, which in 1925 handled 891,000 incoming and 356,000 outgoing calls sustained a loss on this service of $13,043. The Touraine lost $7,883; Parker House, $5,-331, Somerset $5,305 and Young's $2,749. These figures covered the year to August 1, 1925.

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### Michigan Bell Granted Increase at Small Exchange.

The Michigan Bell Telephone Co. has received authority from the state public utilities commission to increase its rates in Royal Oak.

New rates in Royal Oak will be $4 for a one-party business line, as compared with the present rate of $2.88; $3.50 for a two-party business line, as compared with $2.30; $3 for a one-party residence line, as compared with $2, and $2.50 for a four-party residence line instead of $1.75.

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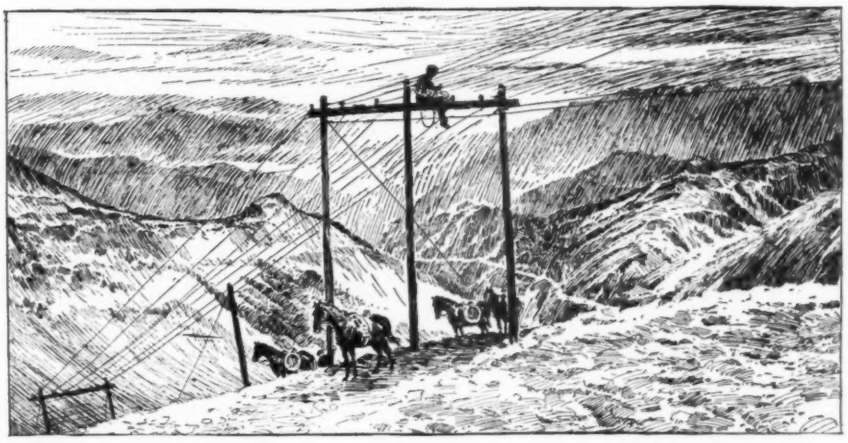
### Increase Allowed in Rates Applicable to Two Small Exchanges.

The North Star Telephone Co., of Mountain Lake, Minn., has been granted an increase in rates by the Minnesota Railroad & Warehouse Commission, at Mountain and Butterfield. With the exception of the individual line business rate which is $2.50 a month at Mountain Lake and $2.25 at Butterfield the old rates were the same at both exchanges. The following is a schedule of the new monthly gross rates:

| | |
|---|---|
| Individual line, business | $3.00 |
| Two-party line, business | 2.75 |
| Individual line, residence | 1.75 |
| Two-party line, residence | 1.50 |
| Rural multi-party, metallic | 2.25 |
| Rural multi-party grounded | 2.00 |
| Business extensions (net) | .75 |
| Residence extensions (net) | .50 |

*Telephone line over the Rocky Mountains*



# *The Builders of the Telephone*

SPANNING the country, under rivers, across prairies and over mountain ranges, the telephone builders have carried the electric wires of their communication network. Half a century ago the nation's telephone plant was a few hundred feet of wire and two crude instruments. The only builder was Thomas A. Watson, Dr. Bell's assistant.

It was a small beginning, but the work then started will never cease. In 50 years many million miles of wire have been strung, many million telephones have been installed, and all over the country are buildings with switchboards and the complicated apparatus for connecting each telephone with any other. The telephone's builders have been many and their lives have been rich in romantic adventure and unselfish devotion to the service.

Telephone builders are still extending and rebuilding the telephone plant. A million dollars a day are being expended in the Bell System in construction work to provide for the nation's growing needs.

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AND ASSOCIATED COMPANIES

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| | |
|---|---|
| Rural multi-party business (in addition to the regular rural rate)... | .50 |
| Desk telephones in residence (in addition to regular rate)..... | .25 |

The exchange at Mountain Lake serves approximately 287 town and 398 rural telephones. The Butterfield exchange serves approximately 92 town and 130 rural telephones. The distance between the two towns is about nine miles. The subscribers of both exchanges are furnished an interchange of service over a grounded circuit without additional charge.

The company is now constructing a new line between Mountain Lake and Butterfield and will provide two physical and one phantom circuits for the purpose of improving this service. The approximate cost of this new line will be $1,750.

The entire system was carried on the books of the company as of December 31, 1925, at $57,733.87 and claim is made that this amount is less than the actual investment. At this same date the outstanding capital stock amounted to $30,750, the notes payable $10,100 and the balance in depreciation reserve, $18,700 with a surplus of $618. The company submitted an appraisal by the American Appraisal Co. showing the cost of reproduction of the entire property as of October 1, 1925, to be $109,633 and the cost of reproduction less depreciation to be $85,124.

Upon review of the facts, the commission found that the existing rates are unfair and unreasonable and do not yield sufficient revenue to provide for a fair return. The commission further found that the rates petitioned for would yield more revenue than necessary to provide for the essential operating expenses, depreciation and a fair return and that the new schedule of rates would produce sufficient revenue to provide for the necessary operating expenses, depreciation and a fair return upon the investment.

The new rate schedule will take effect August 1.

## Present Rates Found Inadequate, Increase Authorized.

The Deuel County Telephone Co. of Hendricks, was authorized by the Minnesota Railroad & Warehouse Commission July 17 to change its schedule of rates. The following are the old and new monthly gross rates:

| | | |
|---|---|---|
| Individual line, business..... | $2.00 | $2.50 |
| Individual line, residence..... | 1.50 | 1.75 |
| Two-party line, residence..... | 1.25 | |
| Rural multi-party line..... | 1.40 | 1.75 |
| Rural switching charge (net) | .35 | .35 |
| Extension station business (net) ..... | | 1.00 |
| Extension station residence. (net) ..... | | .75 |

The Deuel County Telephone Co. is a corporation with its principal place of business at Hendricks, and is engaged in the operation of a local telephone exchange and rural lines in the vicinity of Hendricks and also operates in the state of South Dakota.

The Hendricks exchange serves 82 town and 269 rural stations. Service is now being furnished between the hours of 7 a. m. and 8 p. m. with no night service. A hospital has been recently opened in the village and there is a demand by subscribers for a continuous 24-hour service. In order to comply with the request of the subscribers for 24-hour service an additional operator will be required and an additional expense incurred for light and heat.

The commission granted the change after reviewing the annual reports of the company and the exhibits presented at the hearing, to determine that the operating expenses of the company have been and are now reasonable.

There were no appearances in protest to the application.

The commission likewise approved the application of the company for miscellaneous charges as such as service connection charges, move charges, etc.

## Sale of Small Company to Larger, Approved.

The Minnesota Railroad & Warehouse Commission on July 17, approved the sale of the Polk County Telephone Co., of Beltrami, to the Garden Valley Telephone Co. of Erskine, and authorized the later company to place in effect the following monthly gross rates at Beltrami:

| | |
|---|---|
| Individual line, business..... | $2.25 |
| Two-party line, business..... | 2.00 |
| Individual line, residence..... | 1.75 |
| Two-party line, residence..... | 1.50 |
| Four-party line, residence..... | 1.25 |
| Rural multi-party line..... | 1.25 |

The Polk County Telephone Co. owns and operates a magneto exchange at Beltrami, serving approximately 27 town and 125 rural stations, with toll lines extending from Beltrami to Crookston and from Beltrami to Fertile.

Owing to the limited revenue available, the Polk company could not afford to employ the help required to properly operate and maintain the system, so the stockholders decided to effect a consolidation with the Garden Valley Telephone Co.

The Garden Valley Telephone Co. with its principal place of business at Erskine, owns and operates 16 exchanges located in Polk, Norman, Clearwater, Red Lake, Pennington, Marshall, Mahnoman and Beltrami counties and toll lines between all of its exchanges.

By unanimous vote on June 7, 1926, the Garden Valley company accepted the proposal for consolidation submitted by the Polk County Telephone Co.

Upon review of all the facts the commission found that the Polk County Telephone Co. was not in a position to properly operate and maintain its telephone property and provide the community with reasonably adequate service, and that the Garden Valley Telephone Co. was equipped to take over the property and satisfactorily conduct the business.

The Garden Valley company proposes to construct a copper toll line between Beltrami and Crookston and rebuild the toll line between Beltrami and Fertile and to general repair the Beltrami exchange plant.

## Oppose Closing of Exchange at Commission Hearing.

Railway Commissioner Taylor had an interested audience at McCook, Neb., the other day, when he heard the application of the Beaver Valley Telephone Co. for permission to close its exchange at Marion and to supply the customers of the latter by party lines from the nearby exchange at Danbury. This, with an exchange at Lebanon, constitutes the holdings of the company, which is locally owned. It is proposed to have private lines run from Danbury to the bank and the Equity exchange at Marion, so that private messages may be sent.

There are 42 patrons at Marion, and a number of these objected. They said that the company had never given to the Marion exchange all of the adjacent territory, but had served it from one or the other of its exchanges, and that if the former had been done the showing for Marion would not be so bad. The revenues last year were $780, and the cost of giving the service was over $1,000. One woman is paid $720 a year to attend to the business, and it takes nearly all the gross revenues to pay her.

There was also complaint made that, before the Marion exchange was put in, stock had been disposed of in that neighborhood on the representation that the exchange would always remain there. This was denied in the sense that there was any positive promise to that effect, but that that was the expectation when the exchange was opened. It is now proposed to serve the town with metallic lines, and company officials said the service would be greatly improved.

Little feeling of the usual sort was displayed during the hearing by those opposing the company's request, especially those from the farming districts, who often are unfair and unreasonable.

## Pennsylvania Bell Company Seeks Purchase of Small Company.

An application to the Pennsylvania Public Service Commission has been made by the Bell Telephone Co. of Pennsylvania for the authority to purchase the plant, right-of-way and equipment of the Farmers' Mutual Telephone Co. of Point Marion.

The Point Marion company is owned by Edward Moore of that place and serves between 250 and 300 subscribers.

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## Securities Authorized to Permit Merging of Wisconsin Companies.

The Wisconsin Railroad Commission on July 24 approved the application of the Central Telephone Co. for authority to issue $60,000 principal amount of its first mortgage 15-year 6 per cent gold bonds and $30,000 par value of its common stock for the purpose of securing funds with which to acquire all the property and assets, subject to the liabilities of the Brown County Telephone Co., Deerfield Telephone Co., Oostburg Telephone Co., and Cedar Grove Telephone Co.

As of December 31, 1925, the assets and liabilities of the companies were listed as $117,410.76. Another balance sheet, after giving effect to the new financing, showed the assets and liabilities as $126,910.76, as of December 31, 1925.

At the time of filing the application, the company did not submit a detailed inventory of the properties to be acquired, but stated that such inventory would be submitted at a later date. The commission found and determined that the net value of the assets to be acquired according to the balance sheet of December 31 was at least $90,000. It was shown that the company had satisfactorily complied with the requirements of the state statutes and the commission decided that the issuance of $30,000 of common stock and $60,000 of bonds at the present time is lawful and for lawful purposes and reasonably necessary for the purposes of the corporation, and that the proposed consolidation was for the good of the public.

In giving its decision, the commission stated that the value of the properties which it had used should not be taken in a proceeding before it or before any other public authority, as representing the fair value for any other purpose.

After the company has submitted the detailed inventory of its property, and the commissioner's engineers have priced the property, the commission will determine what amount of additional securities may then be authorized.

The Central Telephone Co. was ordered to file with the commission within 30 days after the acquisition of the properties, a statement showing in detail the facts in relation to such acquisition, and also showing what disposition has been made of the return from sale of the bonds and stock. The stock is to be sold for not less than par and the bonds at not less than 90 per cent of their par value.

## Summary of Commission Rulings and Schedule of Hearings.

ARIZONA.

July 20: Hearing on the application of the Mountain States & Telegraph Co. for increase in rates at Duncan.

CALIFORNIA.

July 19: Nevada, California & Oregon Telegraph & Telephone Co. authorized to construct and operate a toll telephone and telegraph line between Chester, Plumas County, and Red Bluff, Tehama County. For the service the utility will be permitted to make a charge similar to the charge it collects for the same kind of service on other parts of its lines. The company is also authorized to establish and maintain connections for the interchange of toll telephone and telegraph business at Red Bluff with the lines of the Pacific Telephone & Telegraph Co., and is also authorized to establish a toll station at Mineral, Tehama County.

July 19: Order issued permitting the Santa Paula Home Telephone Co. to charge 5 cents for each local message made from public stations on and after August 1. It also permits the company to make certain other charges for changing telephone locations.

July 19: The Antelope Valley Telephone Co. authorized to make certain changes in its toll rates. The changes become effective on and after September 1.

ILLINOIS.

July 13: Approval given agreement between the Chesterfield Telephone Co., of Chesterfield, and the Illinois Central Telephone Co., of Joliet, for the connection of toll lines in territory served out of the Chesterfield exchange.

July 13: The Pike County Telephone Co., of Pittsfield, given authority to put into effect a toll schedule in territory covered by the company.

July 27: Hearing at Chicago before Commissioner Trovillion in the matter of the Joe Davies County Mutual Telephone Co.'s proposed advance in rates for service in Mossbach and vicinity, stated in rate schedule Ill. C. C. No. 1 of the company. The matter was set for further hearing for the purpose of presenting report of the engineering section of the commission.

July 28: Hearing at Quincy before Chairman F. L. Smith on the application of the Telephone Exchange of Loraine for an order authorizing the issue of its mortgage for $1,750 on its telephone property.

July 29: Hearing at Chicago before Commissioner Moynihan in the matter of complaint filed by Cooney and Keefe against the Farmers Mutual Telephone Co., of Tampico, alleging excessive annual rate for individual line for telephone service at Deer Grove, Whiteside county.

INDIANA.

August 17: Rehearing at Hope on the petition of the Hope Independent Telephone Co. for an increase in rates on exchanges at Hope and Hartsville in Bartholomew county and the Cave, St. Paul and Flat Rock exchanges in Shelby county. A former hearing in this matter was given January 15, 1926, at which time the petition of the company for increased rates was denied.

KANSAS.

July 17: Application filed for approval of the sale of the Lancaster Light & Telephone Co. and property at Lancaster by E. E. Darssam to E. C. Yoakum.

MINNESOTA.

July 17: Application of the Deuel County Telephone Co., of Hendricks, for increase in rates approved.

July 17: Approval given the sale of the Polk County Telephone Co., of Betrami, to the Garden Valley Telephone Co., of Erskine. The latter company was authorized to place in effect an increased schedule of rates, the same as applies on the Garden Valley system.

July 17: The North Star Telephone Co.'s application for advance in rates approved, the new schedule effective August 1.

MISSISSIPPI.

July 16: The petition of the Cumberland Telephone & Telegraph Co. asking for

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| Am. Elec. Co. No. 360 type 3-bar 2500 ohm 4-party compacts with biased ringers @ | 6.75 |
| American Elec. No. 36 type 5-bar 1600 ohm Bdg. compacts @ | 7.50 |
| Chicago Telephone Supply Co., 4-bar 1000 or 1600 ohm Bdg. compacts @ | 6.75 |
| Stromberg No. 599 4-bar 1000 or 1600 ohm Bdg. compacts @ | 6.90 |
| Stromberg Late type 1000 ohm self-contained ringers complete less gongs @ | 1.20 |
| Mansbridge ½ M. F. Condensers @ | .30 |
| Dean No. 240 type 4-bar 1000 or 1600 ohm Bdg. compacts @ | 6.90 |
| Garford Pony type 4-bar 1600 ohm Bdg. compacts @ | 8.50 |
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an increase in the rates on long distance messages from points in Mississippi, dismissed. The petition was dismissed on the technical ground that the commission had no jurisdiction of the petition in the form presented.

MISSOURI.

July 26: Present rates of Southwestern Bell Telephone Co. for business telephone in St. Louis extended 90 days from August 1. The company had sought an indefinite extension. The present rates were put into effect July 1, 1925, and represent a 25 per cent increase over previously prevailing tariffs.

NEBRASKA.

July 20: In the matter of the application of the Max Telephone Co. for authority to issue stock; it appearing to the commission that this company, heretofore operated as a partnership, desires to and has incorporated as a stock company, and the purposes thereof being approved, permission is given to issue stock in the sum of $1,080 to represent the values attaching to the partnership and $200 additional for betterments and other corporate purposes.

July 21: In the matter of the application of the Pierce Telephone Co. for a rate for party-line selective ringing; it appearing that this application is covered in another case before the commission, ordered that it be canceled of record.

July 21: Application filed by the Angier Telephone Co. of Dix, a new corporation, asking for permission to issue stock.

July 24: Application filed by the Northwestern Bell Telephone Co. for authority to eliminate toll station at the Herman Busch business establishment at Washington, on the ground that while this served as the only communication outlet for the district for a number of years, it is now being served by companies from Arlington and Bennington and the revenues have dropped to $3.85 last year. Mr. Busch filed his consent.

July 26: Hearing at Blair on the application of the Blair Telephone Co. for authority to purchase the competing exchange of the Northwestern Bell Telephone Co., consolidate the two properties and increase rates for consolidated service.

OKLAHOMA.

July 26: Rehearing at Oklahoma City of the case of the Medford Telephone Co. versus the Southwestern Bell Telephone Co.

July 26: Oral argument at Oklahoma City in the case of John A. Simpson versus the Southwestern Bell Telephone Co.

PENNSYLVANIA.

July 17: Bell Telephone Co. of Pennsylvania applied for permission to purchase the Farmers' Mutual Telephone Co. of Point Marion.

VIRGINIA.

July 10: Agreement approved whereby the Plains District Mutual Telephone Co., of Broadway, was taken over by the Harrisonburg Mutual Telephone Co., of Harrisonburg. At the same time the commission revoked two recent orders entered by it relative to a controversy between the two companies over a physical connection between their lines.

WISCONSIN.

July 24: The Central Telephone Co. authorized to issue $60,000 principal amount of its first mortgage 15-year 6 per cent gold bonds and 30,000 shares, par value $100, of its common stock for the purpose of securing funds with which to acquire all the properties of the Brown County Telephone Co., Deerfield Telephone Co., Oostburg Telephone Co. and the Cedar Grove Telephone Co.

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